

THE MARITIME LAW ASSOCIATION
OF THE UNITED STATES

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**TOUR OF UNITED STATES COAST GUARD BASE,
GOVERNORS ISLAND**

We are pleased to announce that through the kind invitation of Rear Admiral Mark A. Whalen, Commander, Third Coast Guard District, arrangements have been made for all interested members of this Association and their ladies to visit the facilities and ships of the United States Coast Guard at historic Governors Island, in New York Harbor.

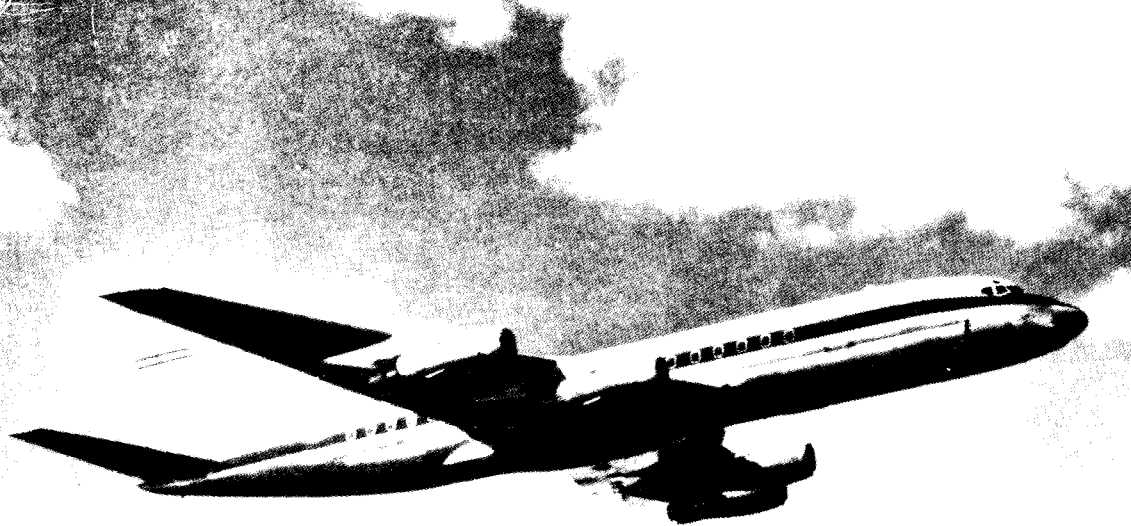
Of particular interest will be a demonstration at the remarkable AMVER Computer Center which is described in the enclosed pamphlet. The demonstration, including a film, will be conducted by Commander John G. Caffrey and his staff.

There will be a total of 8 tours—at 9:30 and 10:30 in the morning and 2:00 and 3:00 in the afternoons of Wednesday and Thursday, November 5th and 6th, the two days immediately preceding the Association's Annual Fall Meeting. We suggest that those who are able to do so, elect to take a Wednesday tour. The tours, of about 2 hours each, will convene at the Coast Guard Ferry Station (just east of the Staten Island Ferry Terminal at the Battery) 10 minutes prior to tour time. The South Ferry subway station provides easy access. No private automobiles will be permitted on the Island.

The Coast Guard has requested that it be furnished the names of those who intend to take the tours well in advance of the tour dates. Accordingly, if you wish to attend, we should appreciate your returning the enclosed card prior to October 20th. The Officers' Club on Governors Island has arranged for a buffet lunch and refreshments for those attending the morning tours at a total cost of \$3.00 each, payable at the door. If you wish lunch, please so indicate on the enclosed card. This is the only charge to be incurred.

The Committee for this special tour consists of Messrs. Lawrence J. Bowles, George B. Freehill, John F. O'Connell, Leonard K. Ram-busch and Joseph C. Smith, with Gordon W. Paulsen as chairman. Any inquiries concerning the tour may be addressed to any one of these men.

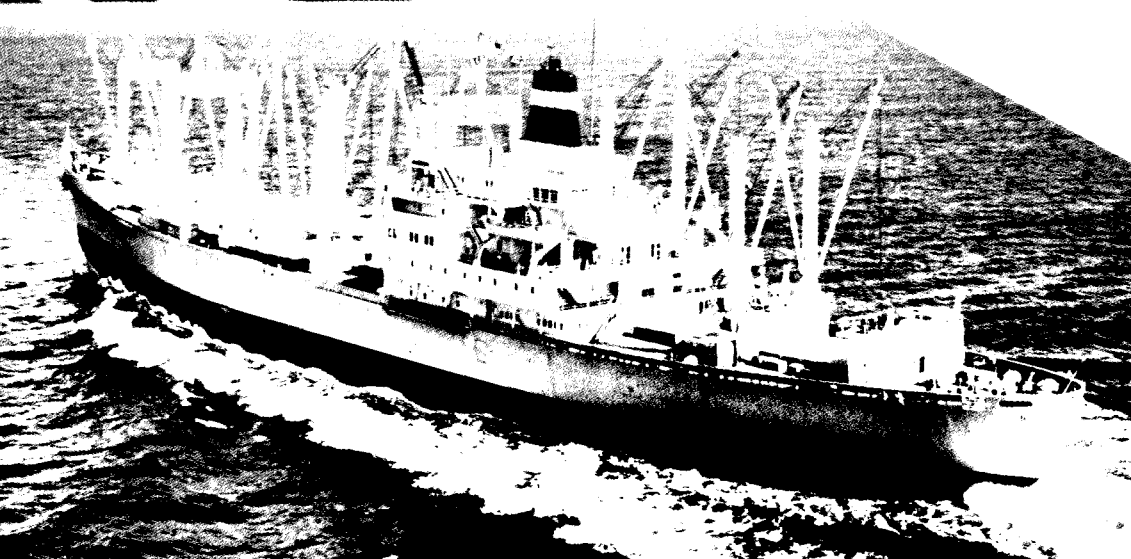
FRANCIS J. O'BRIEN
Secretary



the
AMVER
system

U.S. Coast Guard

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AMVER.....

WHERE MAN AND MACHINE COMBINE TO MAKE THE SEAS SAFER

The ageless tradition of the sea, that no call for help shall go unanswered, has joined with a modern electronic computer to make possible an effective maritime mutual assistance program. Operated by the U. S. Coast Guard, the Automated Merchant Vessel Report (AMVER) system provides important aid to the development and coordination of search and rescue efforts in offshore areas of the world.

Search and rescue operations to resolve emergency situations can take many forms. They may involve arranging medical help for a seriously sick or injured person aboard a vessel without a doctor, aircraft alert cases that could require the plane to ditch at sea, or other distresses involving ships as they sail the world's oceans. There is one common element: essential information must be available to rescue coordination centers in a timely manner, so that potential assistance may be utilized effectively and with least delay to those offering aid.

It is an established fact that several thousand merchant vessels are sailing the oceans of the world at any given time. Some of these vessels have the proven potential for early arrival at the scene of a maritime incident, and it is the objective of the AMVER system to make possible maximum efficiency in coordinating assistance offered by merchant vessels to save life and property at sea.

This is accomplished by merchant vessels, departing on offshore passages of 24 hours or longer, voluntarily sending sailing reports to the AMVER Center, located at Coast Guard New York. The reports are sent via specified coastal, island and ocean station vessel radio stations at no cost to the vessels. The data from these reports consists of time and place of departure, routing, speed, and time and place of destination. This information is processed and is entered into the electronic computer, which generates and maintains dead reckoning positions for the vessels, and which predicts positions for use during emergencies at sea where assistance is needed.

These positions are only as accurate as the degree to which the vessels have followed their reported sail plans. Therefore, occasional corrective position reports are required during passages to insure that the electronic computer will predict the positions within limits of desired accuracy. It is not important that these position reports be sent at any particular time or location. However, it is suggested that they be prepared at intervals of approximately 15 degrees of latitude or longitude, depending upon the direction of travel. Positions are also extracted from weather reports sent by those ships participating in the international weather observation program.

Characteristics of vessels which are valuable for determining search and rescue capability are also entered into the computer. These include information as to the vessel's radio watch schedule, whether it is equipped with surface search radar, whether it has radio-telephone capabilities for communication with search aircraft, and whether it carries a doctor on board.

Participation in the AMVER system is free of cost to all merchant vessels of any nation. The vessel's ability to participate is determined by the duration and type of passage and its radio communication capabilities. There is no enrollment required or agreement to sign, and vessels participating in the system are under no greater obligation to render assistance during an emergency than any other vessel. At the same time, participation in the program is not a prerequisite for a vessel desiring assistance.

When emergencies occur at sea, the appropriate search and rescue agency is responsible for conducting and coordinating search efforts. The rescue coordinator, if he feels it will be beneficial, will request from AMVER a listing of vessels predicted to be in the area of the distress. This listing, called a "Surface Picture", contains the computer-predicted position, course, speed, and destination of each vessel, along with its search and rescue capabilities. This information is provided to aid the controller in evaluating the case and in determining the most rapid and reliable means of assistance.

The AMVER computer is programmed to provide three basic types of Surface Pictures. These include the "Radius", which is a listing of vessels within a given number of miles of a specific position; the "Hi-Lo", which lists vessels within a rectangular area, defined by limiting parallels of latitude and meridians of longitude; and the "Trackline", which is a listing of vessels within a given number of miles on either side of a trackline extending between two specific positions. Any of these Surface Pictures may be requested to contain all vessels on plot in the area, only doctor-carrying vessels, only eastbound or westbound vessels, or just eastbound or westbound doctor vessels.

Surface Pictures are provided, upon request, to recognized search and rescue agencies of any nation for search and rescue purposes. A sample Surface Picture appears below.

Operational and administrative responsibility for the AMVER system is assigned primarily to Commander, Eastern Area, U. S. Coast Guard, Governors Island, New York 10004. The system is coordinated in the Pacific region by Commander, Western Area, U. S. Coast Guard, U. S. Appraisers Building, 630 Sansome Street, San Francisco, California 94126. Other countries are also a formal part of the AMVER system, and provide radio stations for relay of the sailing reports. Applicable instructions to mariners have been promulgated by official publication of the participating countries.

<i>Vessel</i>	<i>Call Sign</i>	<i>Position</i>	<i>Time</i>	<i>Course</i>	<i>Speed</i>	<i>SAR Capability</i>	<i>Destination</i> <i>ETA</i>
NORSE LADY	JXQD	37.1N 050.0W	301800	C070	15.6K	HX R T	ROTDAM07
CHUSCAL	GHJS	36.7N 050.0W	301800	C078	17.7K	H8 R T	GIB
ALDENBURG	DAJV	38.3N 049.4W	301800	C055	16.3K	H8 R T	QUSANT05
MORMACRIO	KPZA	38.0N 051.3W	301800	C273	16.0K	HX R T	PHILA 03
SUE LYKES	KRRQ	36.0N 048.3W	301800	C248	14.5K	HX R N	HOU 17
OCEAN STA ECHO	4YE	35.0N 048.0W	300600	C	00. K	H24RDT	OSE
JERUSALEM	4XVI	39.4N 050.2W	301800	C187	19.0K	H24RDT	BAIRES07
EXCHESTER	KHHS	39.5N 051.7W	301800	C093	16.5K	HX R N	GIB
OTI	GVGP	34.6N 048.0W	301800	C130	15.0K	H8 R T	LAGOS
ALFRED THEODOR	DABN	38.7N 053.0W	301800	C063	12.5K	H8 R T	BREMEN09
TIMBO	5MOP	36.0N 053.5W	301800	C270	13.3K	HX R T	AMBROS04

SAR Capability: H = Radio Watch, R = Radar, D = Doctor, T = Radio Telephone



AMVER reports from ships at sea are relayed by radio stations to the AMVER Center on Governors Island in New York. The reports are received over teletype circuits (1), checked and evaluated (2), and then used to generate correct sail plans by punching the information into cards (3).

1. Position Report Received

4. ... and read into the computer





2. ...Checked, Evaluated



3. Cards are punched...

5. A Message on Tape

The cards are read into the electronic computer system (4) which maintains a continuous plot of participating ships on the magnetic memory disks. When an emergency occurs, the computer predicts the location and capability of vessels suitable for providing assistance and punches a card for each ship. The cards are converted to tape and transmitted over the rescue teletype circuits (5) to be used in resolving the emergency.



Emergencies occur anytime

THE AMVER SYSTEM STANDS READY TO HELP 24 HOURS EACH DAY

International and intragovernmental agreements, as well as customs and traditions of the sea, encourage the spirit of maritime mutual assistance. The AMVER system is just one development aimed at coordinating this effort.

A classic example of this air-sea maritime mutual assistance is illustrated by the following account of a case which occurred in the Pacific area during 1966. It involved a single-engine private aircraft, with one man aboard, which was making an estimated 18 hour flight from San Francisco to Honolulu.

Shortly after departure, communications difficulties began, so positions were relayed to the private plane from other airborne aircraft. The last position, that of 31°N 147°W, was relayed to the aircraft at about 6 a.m., Honolulu time, some 12 hours after it had departed on the flight. This location showed him to be about 100 miles north of his probable intended course.

As time passed, it became obvious the aircraft was in trouble, so at 10:18 a.m. a Hercules C-130B search aircraft departed the Coast Guard Air Station at Barbers Point, Hawaii, to attempt to locate the wayward plane. A Military Airlift Command aircraft had been monitoring the radio circuit and its pilot, a Navy commander, was convinced the private aircraft was considerably north of its intended track and advised the pilot to turn south. This advice was followed, but as another two hours passed, it became apparent the craft was lost and additional aircraft, including an Air Force HC-97 with paramedics on board, were launched. At the same time, three Coast Guard cutters, the Winnebago, Cape Corwin and Cape Small, were dispatched from the Hawaii area; urgent marine information broadcasts were issued; an AMVER Surface Picture was requested; and the U. S. Navy was asked for the location of any of its vessels in the vicinity.

At 2:50 p.m., one of the two Coast Guard HC-130B aircraft now on the case sighted the private plane about 850 miles north of Honolulu. By this time it had been in the air better than 20 hours, and had only about four hours of fuel remaining. Had the Military Airlift Command plane not advised it to turn south, intercept probably would not have been made. As it was, her remaining fuel was not sufficient for the flight to Honolulu.

Meanwhile, the American President Line freighter SS President Arthur had appeared on the AMVER Surface Picture and had also answered the urgent broadcast, as had four other merchant vessels. She was requested to transmit a carrier signal on 410 kc/s for aircraft homing procedures and to communicate with the escorting Coast Guard aircraft on 500 kc/s. She did both, and diverted to the estimated ditch position. The vessels and aircraft no longer needed were recalled from the search. One Coast Guard HC-130B took station orbiting the President Arthur and relayed communications, while the other continued to escort the private plane and to brief its pilot on ditching procedures. The Air Force plane with the paramedics on board joined in escorting the small plane to the ditching point.

Finally at 6:22 p.m., 24 hours and five minutes after departing San Francisco, the aircraft ditched alongside the President Arthur, about 500 miles north of Honolulu. The pilot, wearing a lifejacket, immediately left the craft and was picked up by a lifeboat from the freighter. He was unhurt except for minor cuts. The plane sank in 10 minutes.

The present AMVER program is an outgrowth of a manual plot, maintained by the Coast Guard, which included vessels in the American Atlantic coastal waters. In 1958, with the installation of an electronic computer, the area of plot was expanded to mid-Atlantic. As the participation and communication capability increased, it became feasible to expand the area again, and during early 1963 the plot was expanded to include the entire North Atlantic Ocean.

In 1965 the AMVER system became truly international in scope when an improved electronic data processing center and additional communication facilities made possible its expansion into many new areas of the world, including the South Atlantic and Pacific Oceans. Today AMVER is capable of plotting vessels anywhere in the world, as long as they can transmit their sail plans and position reports to the center through specified maritime radio stations.

By early 1967 cooperation had risen until vessels of over 60 maritime nations had participated in the AMVER program. The computer's magnetic memory contained a list of nearly 18,000 merchantships with their search and rescue characteristics. Five thousand different vessels were being plotted on 10,000 separate passages each month, while an average plot size of better than 1,700 vessels was maintained. During an average month, over 200 Surface Pictures were provided by the AMVER Center for use in helping to resolve actual or potential emergencies at sea. Additionally, more than 1,000 "precautionary" Surface Pictures were provided each month, primarily to air control agencies in the Pacific region for use in case of alerts on long over-water aircraft flights.

The level of participation and international cooperation continues to increase rapidly. This is reflected in the fact that the AMVER Communication Network, that group of radio stations which forwards sail plans and position reports from the ships at sea to the AMVER Center, has increased to over 60 throughout the world.

Likewise, the advantages of the AMVER system continue to increase. For instance, an added benefit of participating in the program is that the AMVER Center consolidates the reports of the estimated time of arrival included in the AMVER messages for those vessels en route to ports in the United States, and forwards them to the appropriate Coast Guard District Office. This procedure satisfies the requirement of the U. S. Code of Federal Regulations that vessels report their estimated time of arrival for certain passages 24 hours prior to arrival.

AMVER Instructions are available in 13 different languages to provide detailed guidance and procedures for the radio messages as well as a listing of radio stations, with respective frequencies, which are a part of the communication network.

Each month the AMVER Bulletin is published, in English, to report items of interest concerning the AMVER program and other pertinent matters related to maritime safety. It is distributed free of charge upon request to organizations and individuals interested in maritime affairs.

AMVER

AMVER is a computerized, world-wide, merchant vessel plotting program, designed to maintain and provide information on vessels for use in search and rescue operations.

....To participate in the AMVER program, a vessel need only to send its sail plan and periodic position reports. There is no enrollment required and no agreement to sign.

....AMVER will plot ships anywhere in the world as long as they are able to send their sail plans and position reports to the Center.

....Participation by a vessel is free of cost to both the vessel and its company.

....Surface Pictures are provided, free of charge, to any recognized search and rescue agency in the world for use in saving lives and property at sea.

....Vessels participating in the AMVER program are under no greater obligation to render aid in emergency situations than are non-participants.

....The system has received international endorsement from both the 1960 Safety of Life at Sea (SOLAS) Conference and the Inter-Governmental Maritime Consultative Organization (IMCO).

(COVER PHOTOS COURTESY GRACE LINE & ICAO BULLETIN)

