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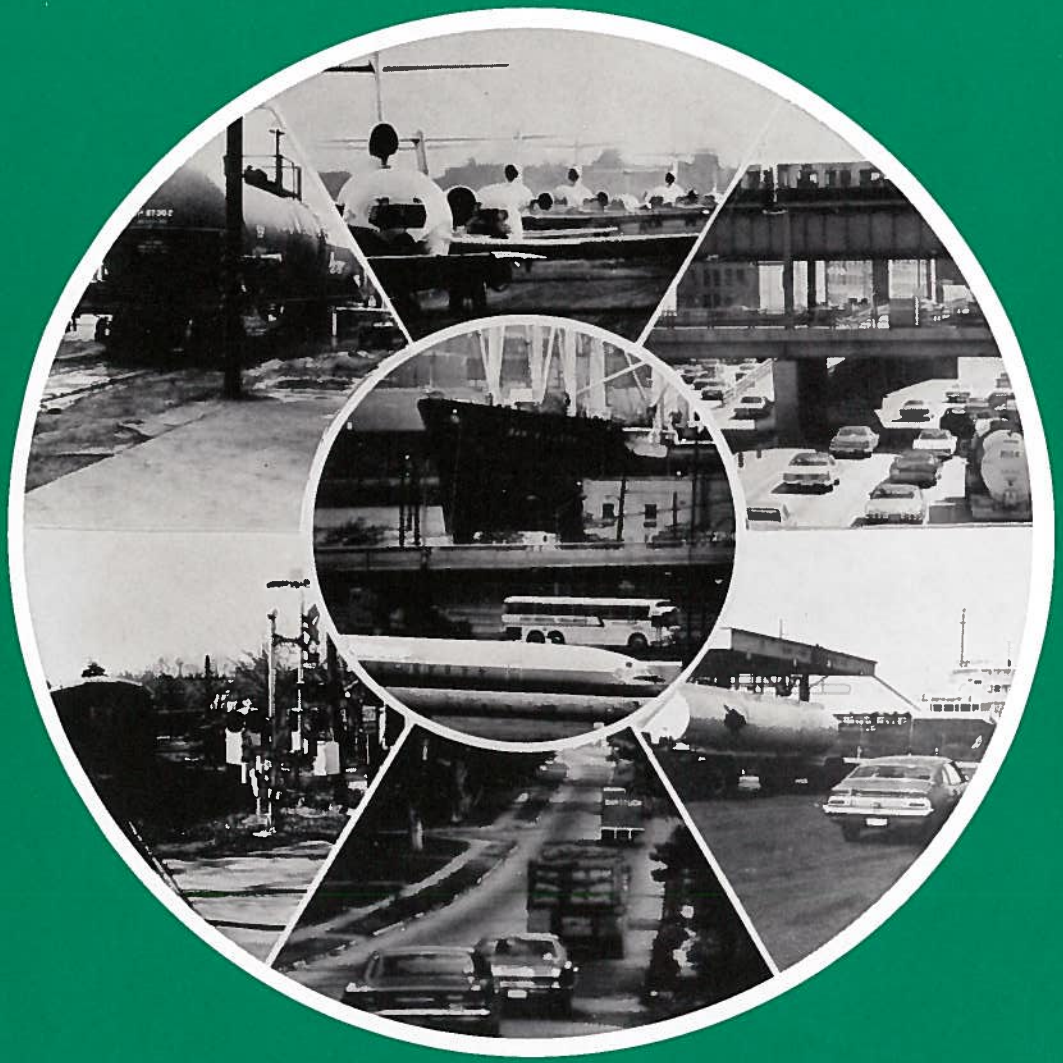
U.S. Department
of Transportation

**Research and
Special Programs
Administration**

Transportation Safety Information Report

1986 Annual Summary



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16. Abstract

The "Transportation Safety Information Report" is a compendium of selected national-level transportation safety statistics for all modes of transportation. The report presents and compares data for transportation fatalities, accidents, and injuries on a monthly and quarterly basis for the current and preceding years. The report is based on data input to the Transportation Safety Information System (TRANSIS) by representatives in each of DOT's modal administrations and the National Transportation Safety Board.

Featured in this report is the annual summary of modal safety hazards and safety program highlights for 1986, as well as summary charts detailing modal safety trends from 1976 to 1986. It should be noted that 1986 data are not yet available for selected tables and graphs.

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TRANSIS REPRESENTATIVES AND MANAGEMENT

AGENCY	ROUTING SYMBOL	TELEPHONE	ROOM
UNITED STATES COAST GUARD			
Paul Ponce	G-MMI-3	267-1430	2406(TRPT)
Albert J. Marmo	G-BP-42	267-1070	4220(TRPT)
FEDERAL AVIATION ADMINISTRATION			
Charles J. Hoch	ASF-200	267-8256	330B(10A)
FEDERAL HIGHWAY ADMINISTRATION			
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FEDERAL RAILROAD ADMINISTRATION			
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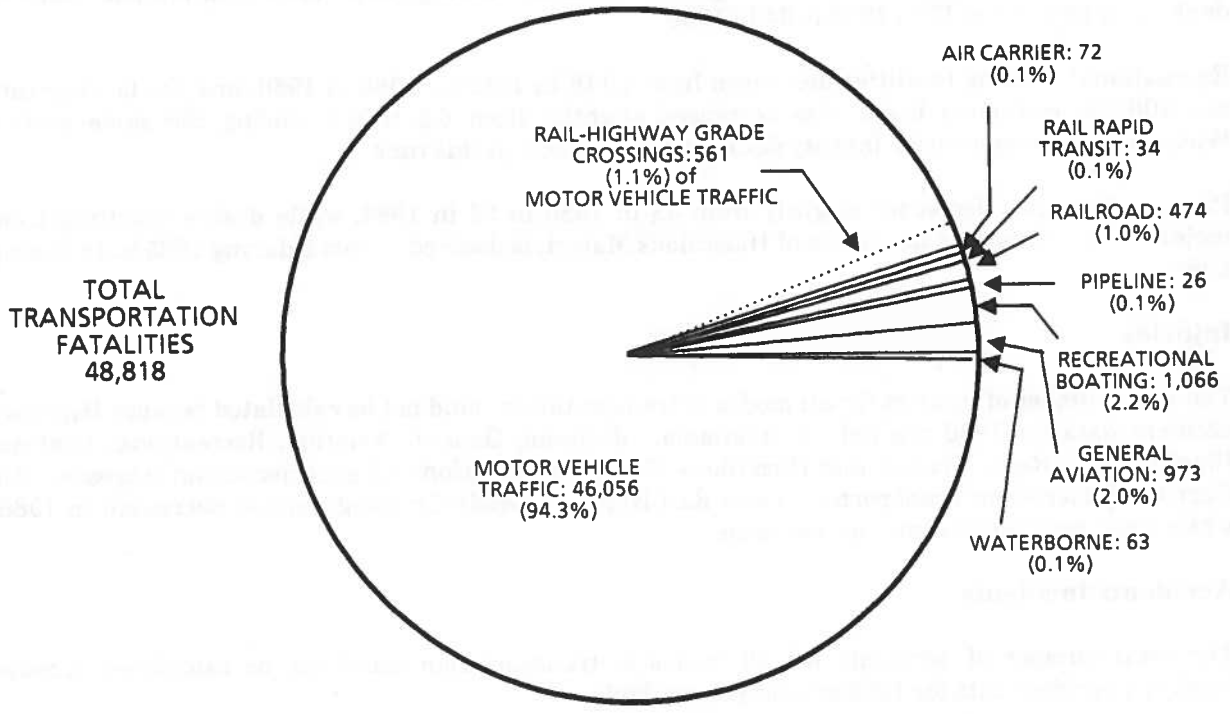
SUMMARY STATISTICS OF TRANSPORTATION SAFETY

- Total Transportation fatalities for 1986 rose to 48,886 from 46,526 in 1985, up over five percent.
- Motor Vehicle Traffic, Railroad, General Aviation, Hazardous Materials, Rail Rapid Transit, and Rail-Highway Grade Crossings all experienced an increase in fatalities during 1986. Modes reporting a decrease in fatalities were Air Carrier, Recreational Boating, and Pipeline operations.
- In 1986, injuries increased in Railroad, General Aviation, Recreational Boating, Pipeline, Rail Rapid Transit and Hazardous Materials operations. A decrease in injuries was reported for Air Carrier, Waterborne Transportation; while Rail-Highway Grade Crossings injuries remained unchanged.
- The total number of Motor Vehicle Traffic accidents was not available for 1986. However, a decline in accidents was reported for Railroad, Air Carrier, General Aviation, Pipeline, Waterborne Transportation, Hazardous Materials, and Rail-Highway Grade Crossings. Only Recreational Boating and Rail Rapid Transit operations experienced an increase in accidents.

FIGURE 1.

TRANSPORTATION FATALITIES, 1986



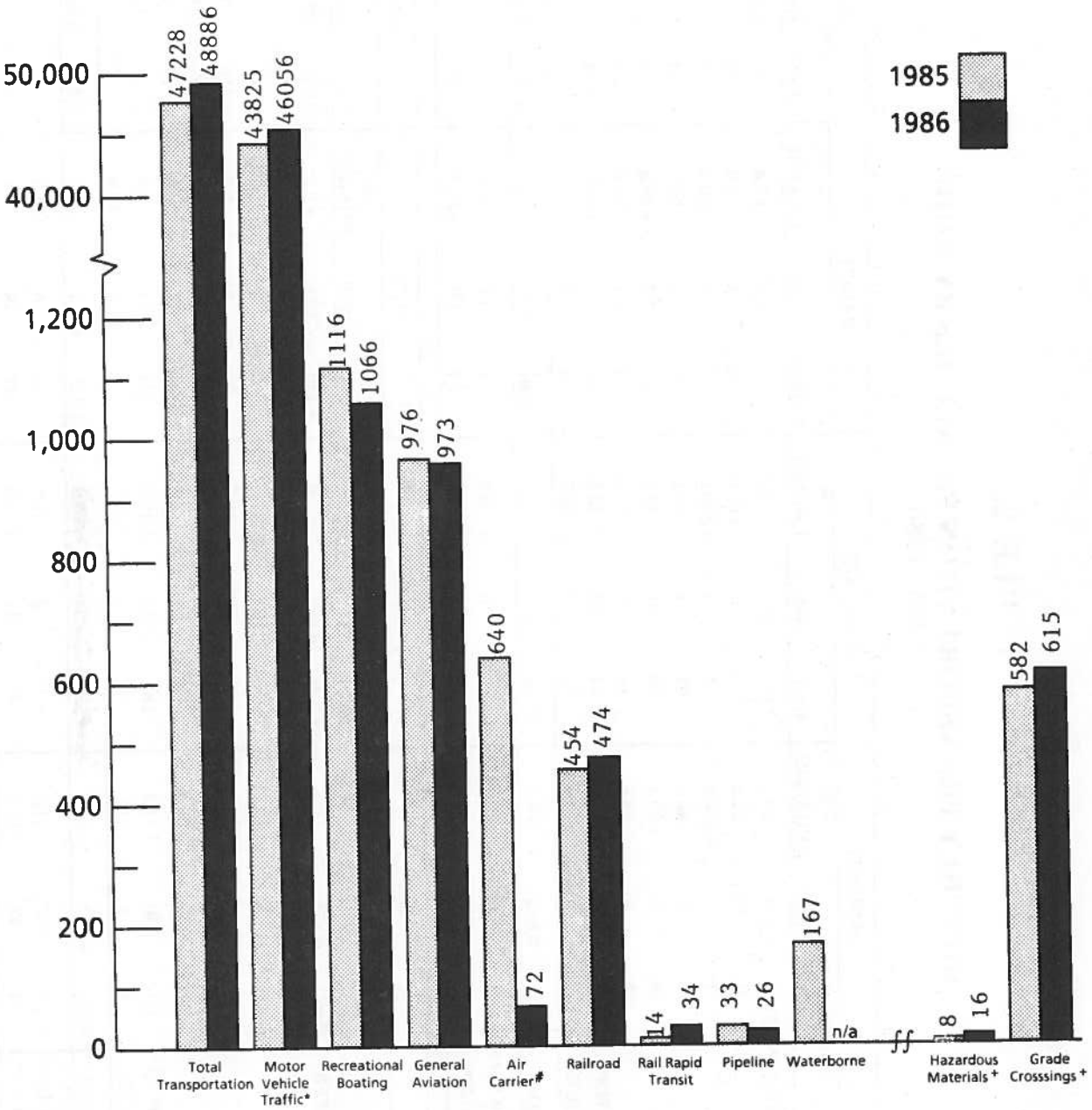
* Includes 54 Rail-Highway Grade Crossing fatalities which are not reported in Railroad figure.
N/A: Not available.

During 1986, accidents decreased in all modes for which there are data, except Recreational Boating and Rail Rapid Transit operations. There were 26,243 accidents reported for Railroad in 1986 compared with 34,592 in 1985. General Aviation accidents dropped from 2,745 in 1985 to 2,568 in 1986. Pipeline accidents decreased from 516 during 1986 to 424 in 1986, while Waterborne Transportation also declined from 3,439 in 1985 to 2,694 in 1986. Hazardous Material accidents dropped from 6,014 in 1985 to 5,671 in 1986, resulting in a seven percent decrease, while Rail-Highway Grade Crossing accidents totaled 6,395 in 1986, 7.6 percent lower than the same period a year earlier.

In the two modes in which accidents increased during 1986, Recreational Boating accidents totaled 6,237 in 1985 compared with 6,407 in 1986, an increase of almost three percent, while Rail Rapid Transit accidents more than doubled, from 1,086 in 1985 to 2,640 in 1986.

FIGURE 2.

TRANSPORTATION FATALITIES BY MODE
1985 - 1986



Note: Data for individual modes are shown in Table 1. 1986 Data are preliminary.

* Total Transportation includes 43 Rail-Highway Grade Crossing fatalities in 1985 and 54 in 1986 which ae not reported in Railroad figure.

** Traffic fatalities are NHTSA's estimates based on a 30-day definition. (see Glossary).

\+ These fatalities are included in other modes and Total Transportation.

\# Air Carrier includes Commuter Carriers and Air Taxis.

TABLE 2. (Continued)

CLASSIFICATION	SEPTEMBER 1985	SEPTEMBER 1986	SEPTEMBER % CHANGE	OCTOBER 1985	OCTOBER 1986	OCTOBER % CHANGE	NOVEMBER 1985	NOVEMBER 1986	NOVEMBER % CHANGE	DECEMBER 1985	DECEMBER 1986	DECEMBER % CHANGE
MOTOR VEHICLE TRAFFIC*	3,838	4,000	+4.2	3,891	4,109	+5.6	3,809	3,781	-0.7	3,419	3,747	+9.6
RAILROAD**	37	37	0.0	31	26	-16.1	31	26	-16.1	29	34	+17.2
RAIL RAPID TRANSIT+	3	5	+66.7	1	0	-100.0	0	0	0.0	0	0	0.0
AIR CARRIER++	20	4	-80.0	9	6	-33.3	13	4	-69.2	0	8	[1]
GENERAL AVIATION	80	60	-25.0	90	49	-45.6	95	70	-26.3	87	78	-10.3
WATERBORNE#	12	2	-83.3	10	8	-20.0	15	1	-93.3	9	n/a	-
RECREATIONAL BOATING	109	99	-9.2	58	54	-6.9	49	57	+16.3	32	26	-18.8
PIPELINES, GAS & LIQUID	0	3	[1]	0	2	[1]	3	1	-66.7	8	5	-37.5
TOTAL TRANSPORTATION	4,099	4,210	+2.7	4,090	4,254	+4.0	4,015	3,940	-1.9	3,584	3,898	+8.8
HAZARDOUS MATERIALS##	0	2	[1]	0	2	[1]	2	0	-100.0	0	1	[1]
GRADE CROSSING ONLY##	44	54	+22.7	70	51	-27.1	60	54	-10.0	63	50	-20.6

CLASSIFICATION	FOURTH QUARTER TOTAL 1985	FOURTH QUARTER TOTAL 1986	FOURTH QUARTER TOTAL % CHANGE	TWELVE-MONTH TOTAL 1985	TWELVE-MONTH TOTAL 1986	TWELVE-MONTH TOTAL % CHANGE
MOTOR VEHICLE TRAFFIC*	11,119	11,637	+4.7	43,825	46,056	+5.1
RAILROAD**	97	97	0.0	454	474	+4.4
RAIL RAPID TRANSIT+	1	0	-100.0	15	34	+126.7
AIR CARRIER++	22	18	-18.2	640	72	+100.04
GENERAL AVIATION	352	248	-29.5	976	973	-0.3
WATERBORNE#	34	n/a	-	167	63	-62.3
RECREATIONAL BOATING	139	137	-1.4	1,116	1,066	-4.5
PIPELINES, GAS & LIQUID	11	8	-27.3	33	26	-21.2
TOTAL TRANSPORTATION	11,775	12,145	+3.1	47,271	48,818	+3.5
HAZARDOUS MATERIALS##	2	3	+50.0	8	16	+100.0
GRADE CROSSING ONLY##	193	155	-19.7	582	615	+5.7

NOTE: 1986 Data are preliminary.
[1] Not calculable.
* Traffic fatalities are NHTSA's estimates based on a 30-day definition. Note that 1984 is a leap year which should increase the February count by 3 percent.
** Fatalities resulting from train accidents, train incidents, and nontrain incidents. Train-related grade crossing fatalities are not included.
\+ Fatalities resulting from train and nontrain incidents.
++ Air Carrier includes Commuter Carriers and Air Taxis (see Glossary).
\# Waterborne data are for vessel casualties only. 1985 and 1986 data are preliminary.
Highway-related grade crossing and hazardous materials fatalities are included in Total Transportation, but rail-related grade crossing fatalities are not included for monthly and fourth quarter. Twelve month total transportation figures include 43 Rai-Highway Grade Crossing fatalities in 1985 and 54 in 1986 which are not reported in Railroad figure.

HIGHWAY

- The death toll on the nation's highways, which dipped in 1983 to its lowest point in 20 years and then turned higher in 1984, declined once more in 1985, rose again in 1986. An estimated 46,056 were killed in 1986, up 5.1 percent from the 43,825 highway fatalities of the year before.

- Despite the 5.1 percent traffic fatality increase for 1986 as a whole, the 1985 trend continued from January through June. Deaths rose 4 percent compared to the same period a year before, with the increase concentrated in the May-June period. From July to December, however, there was a 6 percent increase from the same months in 1985; November having the only decrease -- nearly 1 percent.

- Preliminary estimates of travel show an increase of 4.9 percent in 1986. The fatality rate per 100 million vehicle miles of travel was 2.48 in 1986, an increase of 0.4 percent over the rate in 1985.

- The number of licensed drivers and the number of registered vehicles increased about 1 percent from 1985 to 1986. However, the increases are much more dramatic when 1976 through 1986 are compared. The number of licensed drivers rose over 18 percent and the number of registered vehicles nearly 23 percent in the 11-year period.

- When occupant fatalities by type of motor vehicle are compared for 1985 and 1986, passenger cars recorded a 7.4 percent increase with trucks also increasing 7.5 percent; motorcycles decreased less than one percent, and other vehicle types fell over 17 percent. Total non-occupant fatalities rose nearly 1 percent during the same period.

- Occupants of passenger cars accounted for more than half of the total highway fatalities in 1986. The largest proportion of these fatalities were attributed to subcompact and full size cars -- 33 and 27 percent, respectively.

TABLE 4.

HIGHWAY FATALITIES FOR 1986 COMPARED WITH 1985 AND 1977

JANUARY			FEBRUARY			MARCH			APRIL		
1977	1985	1986	1977	1985	1986	1977	1985	1986	1977	1985	1986
2,738	2,908	3,124	2,877	2,592	2,676	3,497	3,212	3,416	3,730	3,524	3,506
% CHANGE			% CHANGE			% CHANGE			% CHANGE		
1977-86		1985-86	1977-86		1985-86	1977-86		1985-86	1977-86		1985-86
+ 14.1		+ 7.4	-7.0		+ 3.2	-2.3		+ 6.4	-6.0		-0.5

MAY			JUNE			JULY			AUGUST		
1977	1985	1986	1977	1985	1986	1977	1985	1986	1977	1985	1986
4,060	3,927	4,173	4,320	4,220	4,305	4,960	4,110	4,493	4,586	4,375	4,726
% CHANGE			% CHANGE			% CHANGE			% CHANGE		
1977-86		1985-86	1977-86		1985-86	1977-86		1985-86	1977-86		1985-86
+ 2.8		+ 6.3	-0.3		+ 2.0	-9.4		+ 9.3	+ 3.1		+ 8.0

SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
1977	1985	1986	1977	1985	1986	1977	1985	1986	1977	1985	1986
4,250	3,838	4,000	4,560	3,891	4,109	4,148	3,809	3,781	4,152	3,419	3,747
% CHANGE			% CHANGE			% CHANGE			% CHANGE		
1977-86		1985-86	1977-86		1985-86	1977-86		1985-86	1977-86		1985-86
-5.9		+ 4.2	-9.9		+ 5.6	-8.8		-0.7	-9.6		+ 9.6

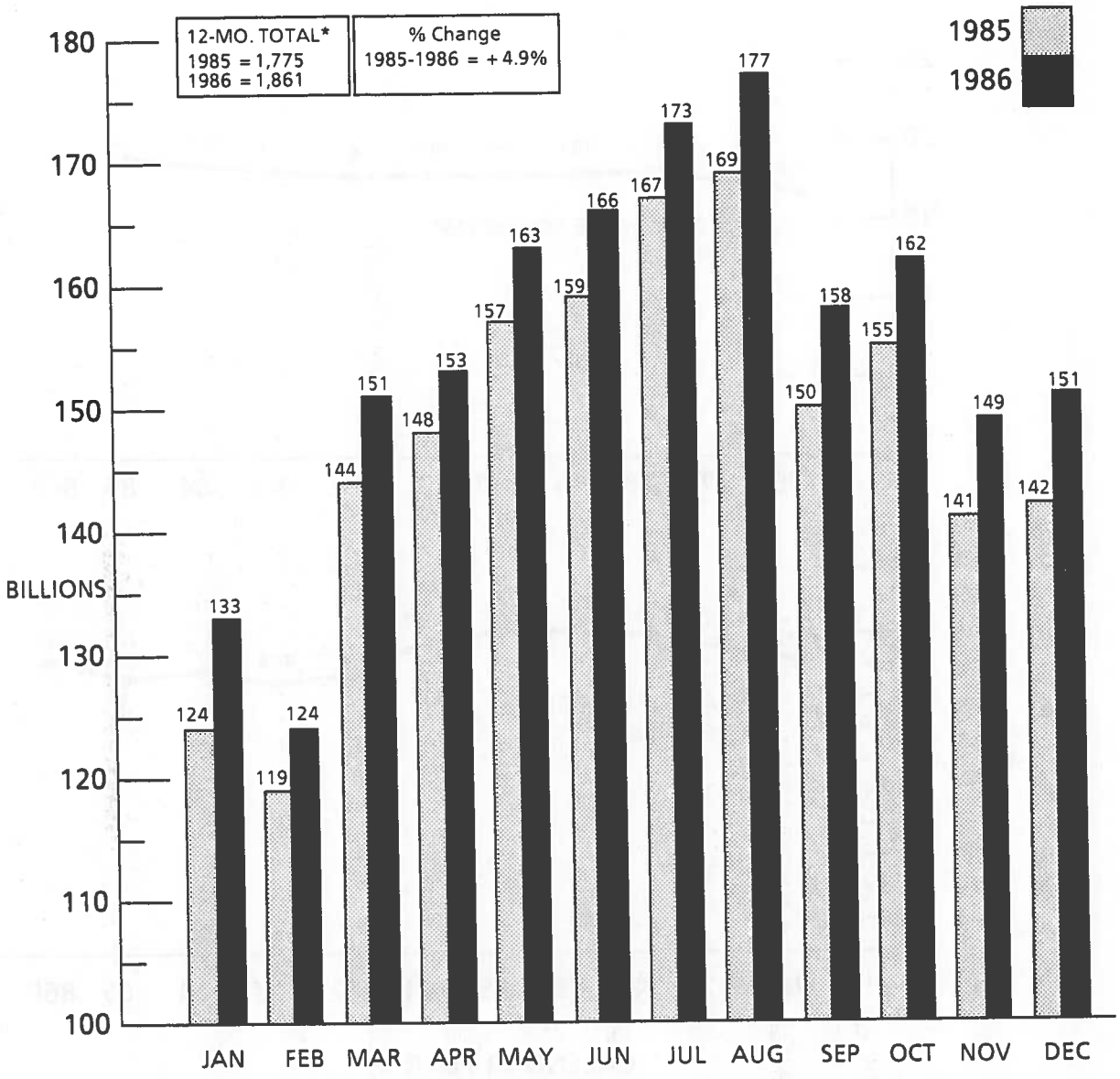
FOURTH QUARTER			12-MONTH TOTAL		
1977	1985	1986	1977	1985	1986
12,860	11,119	11,637	47,878	43,825	46,056
% CHANGE			% CHANGE		
1977-86		1985-86	1977-86		1985-86
-9.5		+ 4.7	-3.8		+ 5.1

NOTE: Figures are based on 30-day fatality definition (see Glossary).
1986 data are preliminary.

SOURCE: Fatal Accident Reporting System (FARS), NHTSA, NCSA, NRD-33.

FIGURE 5.

MOTOR VEHICLE MILES OF TRAVEL, 1985 - 1986P

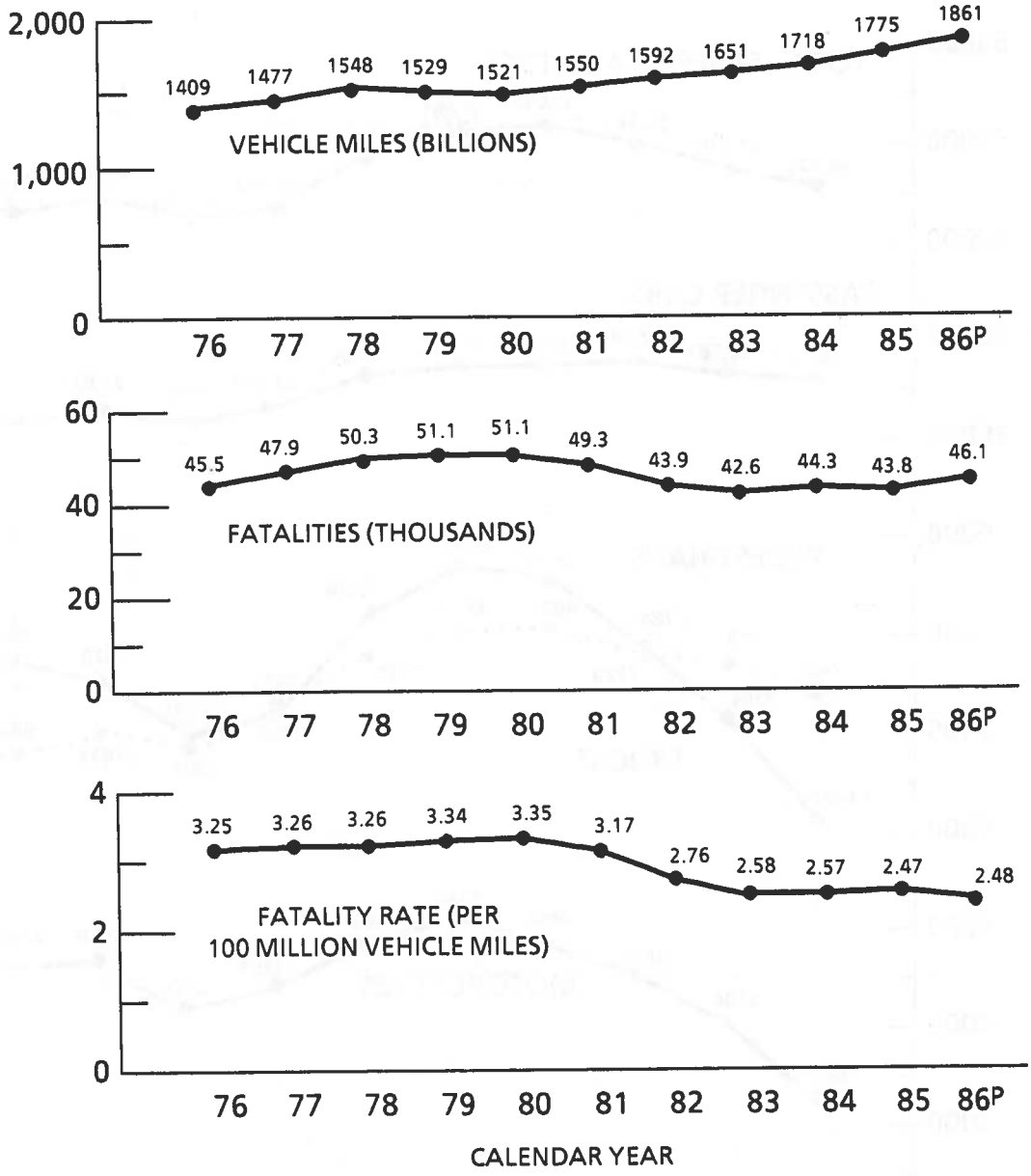


P = Preliminary.
* Sum of months does not equal total due to rounding.

SOURCE: FHWA, Office of Highway Safety, HHS-22.

FIGURE 7.

MOTOR VEHICLE TRAFFIC FATALITY RATES
1976 - 1986



P = Preliminary.

NOTE: Fatalities in this chart are based on a 30-day definition, and include 50 states and the District of Columbia.

SOURCE: Fatality data is from NHTSA, Fatal Accident Reporting System (FARS).
Vehicle-mile data is from FHWA, Office of Highway Planning, HHP-44.
Fatality rate data is from NHTSA, NCSA, NRD-33.

TABLE 5.

FATAL ACCIDENTS BY POSTED SPEED LIMIT, 1976, 1981, 1985-1986

	1976	1981	1985	1986*	Average Annual % Change 1976-86	% Change 1985-86
Under 55 MPH						
0-25 MPH	2,394	2,532	2,504	2,470	+0.28	-1.36
26-35 MPH	6,235	7,867	7,889	8,248	+2.58	+4.55
36-45 MPH	4,508	6,105	6,813	7,173	+4.31	+5.28
46-54 MPH	2,284	2,322	2,072	2,180	-0.42	+5.21
Total Under 55	15,421	18,826	19,278	20,071	+2.42	+4.11
55 MPH	16,364	19,915	18,862	19,867	+1.78	+5.33
Unknown	7,962	5,259	1,055	1,124	-16.30	+6.54
Total	39,747	44,000	39,195	41,062	+0.30	+4.76

* Preliminary.

SOURCE: Fatal Accident Reporting System (FARS), NHTSA.

TABLE 7.

MOTOR CARRIER* FATALITIES, ACCIDENTS, AND INJURIES, BY TYPE OF CARRIER, 1976-1985

CLASSIFICATION	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Motor Carriers of Property										
Fatalities	2,520	2,983	2,998	3,072	2,528	2,810	2,479	2,528	2,721	2,646
Accidents	25,666	29,936	33,998	35,541	31,389	32,306	31,759	31,628	36,854	39,273
Injuries	26,794	31,698	32,757	32,126	27,149	28,533	25,779	26,692	29,149	28,988
Motor Carriers of Passengers										
Fatalities	62	87	68	60	74	95	76	67	57	62
Accidents	624	830	728	719	748	832	855	711	637	678
Injuries	1,723	1,929	1,917	1,977	1,711	2,041	1,970	1,827	1,512	1,793
All Motor Carriers										
Fatalities	2,582	3,070	3,066	3,132	2,602	2,905	2,555	2,595	2,778	2,708
Accidents	26,290	30,766	34,726	36,260	32,137	33,138	32,614	32,339	37,491	39,951
Injuries	28,517	33,627	34,674	34,103	28,860	30,574	27,749	28,519	30,661	30,781

* Includes only those motor carriers operating in interstate or foreign commerce.

SOURCE: FHWA, Compliance Analysis Branch, BMCS, HMC-12.

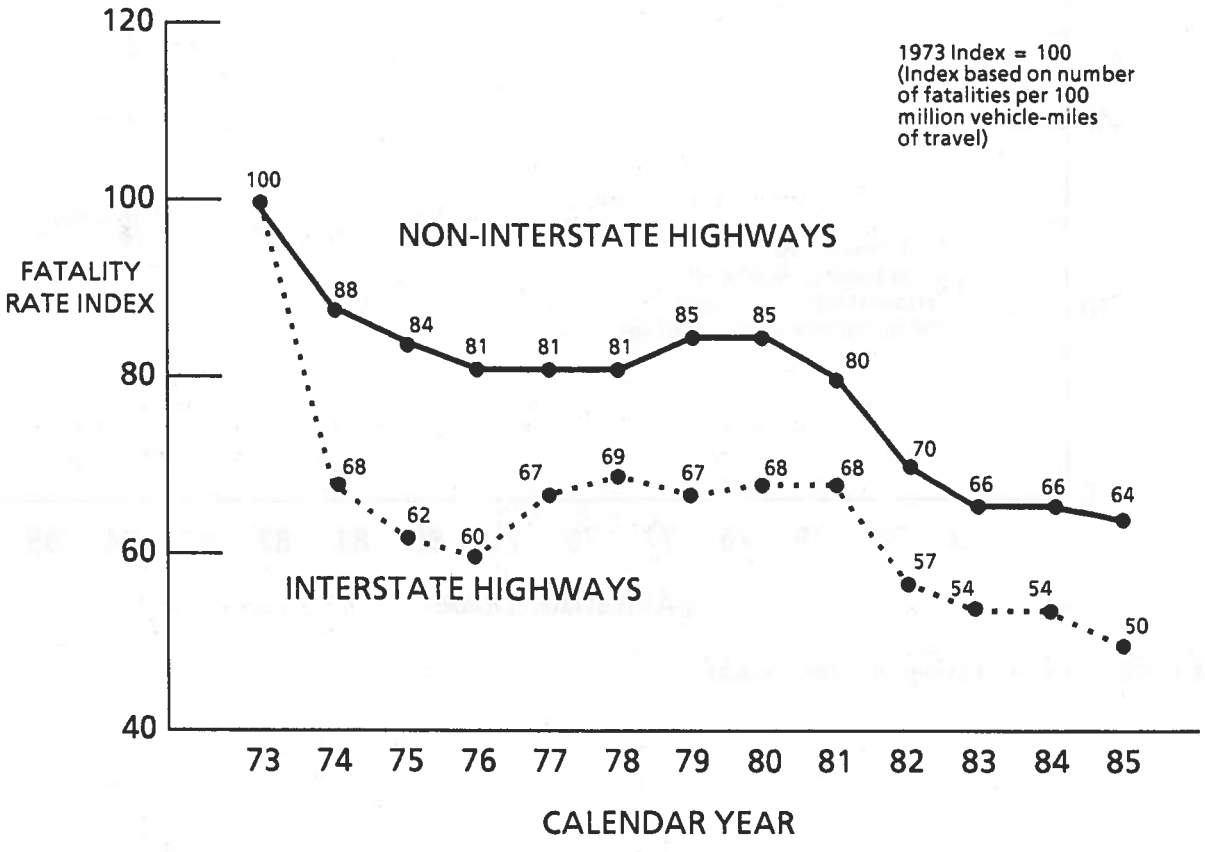
Fatality and Injury Rate Trends

The rates shown in Figures 10 and 11 are based on a 1973 index. From 1973 to 1974, fatality and injury rates declined. From 1975 until 1980, the fatality rates remained fairly constant until 1981 when another downward pattern began and reached an all time low in 1985. There was a one-year drop of about 18 percent in the fatality rate index, (see Figure 11) from 1981 to 1982. In 1983 the fatality rate index declined further, by 6 percent, and remained at that level in 1984, dropping again in 1985 by 5 percent. The injury rate index reflects a similar downward pattern through 1983, with a 2 percent rise in 1984, and then a 1 perent increase in 1985.

Enforcement of the 55-mph speed limit has been more intensive on the Interstate highway system, where speeds and traffic volume tend to be highest. Except for 1982 to 1984, Figure 10 shows the fatality rate has dropped much more sharply on the Interstate highways than on the non-Interstate roads since 1973.

FIGURE 10.

FATALITY RATE TRENDS, 1973 - 1985



SOURCE: FHWA, Office of Highway Safety, HHS-22.

Drinking and Driving

Drunk driving remains a national tragedy. It is the single most common contributor to fatalities and injuries on our nation's highways, and it is the leading cause of death among American teenagers. One-quarter of a million Americans have lost their lives in alcohol-related crashes during the past ten years and untold millions of others have suffered serious injuries. The emergence of new attitudes and behavior patterns show that the entire nation is working towards the goal of making drunk driving socially unacceptable. Programs to discourage drinking and driving are yielding tangible results. In 1985, there were 22,360 fatalities in alcohol-related traffic crashes, compared to 25,160 in 1982. A federal law passed in 1984 encourages the states to adopt a uniform minimum drinking age of 21, and requires the Secretary of Transportation to withhold 5 percent of Federal-aid highway funds from any state that permits "the purchase or public possession of any alcoholic beverage" by persons under 21 after September 30, 1986. The amount to be withheld increases to 10 percent if a state does not have an age-21 law by September 30, 1987. Funding withheld from states will be returned to them when appropriate legislation has been implemented. Controlled studies of the impact of such laws indicated that they reduce alcohol-related fatalities among the affected age groups by 10-15 percent. As of June 15, 1987, 48 states plus the District of Columbia requires 21 as the minimum age for drinking.

SOURCE: NHTSA, NCSA, NTS-01.

Occupant Protection Regulations

Federal Motor Vehicle Safety Standard No. 208 requires automatic crash protection in passenger cars on a phase-in schedule beginning with the 1987 mode year with full implementation in the 1990 model year. If states representing two-thirds of the nation's population enact effective mandatory safety belt usage laws before April 1, 1989, the requirement for automatic protection may be rescinded. NHTSA continues its national campaign to promote the use of occupant restraint systems in motor vehicles as the most effective, immediately available lifesaving protection in the event of a traffic crash. Almost half of all passenger car occupant deaths could be prevented by the use of safety belts. However, NHTSA estimates that only about 23 percent of equipment in all passenger cars since 1968.

SOURCE: NHTSA, NRD-33.

Occupant Protection Programs

With the passage of state laws requiring drivers and passengers to wear safety belts, NHTSA's occupant protection program has focused on providing technical assistance directly to state and local officials responsible for the effective implementation of the law. Such efforts include strong support for coordinated efforts within communities to develop comprehensive programs. These programs typically are designed to coordinate the efforts of local organizations to effectively educate the public about the need to wear safety belts, and to increase public awareness of the state law. Local participants often include representatives of educational, safety, health, medical, civic, and service organizations, as well as corporations and businesses and government agencies. Such efforts coupled with visible enforcement of the law by local officials, have often resulted in usage rates exceeding 70 percent in some communities.

SOURCE; NHTSA, NTS-01

Child Passenger Protection

All 50 States and the District of Columbia now have child passenger protection laws requiring the use of child safety seats and belt systems. According to a 19-city survey conducted by NHTSA, during the lase six months of 1986, about 76 percent of infants and toddlers observed in cars were using child safety seats, an increase of about 20 percent over the previous year. Despite this progress, incorrect installation and misuse of safety seats is a serious problem. A NHTSA study of children riding in child safety seats in cars entering parking lots of fast food restaurants found that about 65 percent of the children were in safety seats that were incorrectly used. Based on results of this study, design changes were suggested to make child safety seats easier to use and less vulnerable to misuse.

SOURCE: NHTSA, NTS-01.

NHTSA Auto Safety Hotline

The NHTSA Auto Safety Hotline, which is toll-free, received over 277-500 calls from consumers in 1986, an average of 760 a day. It serves all the states, the District of Columbia, the Virgin Islands and part of Puerto Rico. Consumers who call the Hotline generally asked about automobile recalls and other car-related matter, or they may want to report safety problems they are experiencing with their vehicles. Hotline operators can also send consumers printed materials on drunk driving, safety belts, fuel economy ratings, crash test results, odometer tampering laws, regulations on importing cars, and other safety-related information. Reports from consumers on details of potential safety defects provide NHTSA with data that are valuable in conducting defect investigations.

SOURCE: NHTSA, NEF-01.

National Driver Register (NDR)

The NDR, which has been in existence since 1960, provides state licensing officials with a central index to the records of drivers with license sanctions for drunk driving and other serious traffic violations. Congress directed NHTSA to develop a computer-based electronic capability for the exchange of state driver licensing information through the NDR, and to select four states to participate in a pilot program to demonstrate the effectiveness of the system. In response to a request from a state about an individual driver, the NDR file is searched to ascertain if there is a record for that person in any other state. If there is, NDR contacts the state with the record for detailed information which is then transmitted to the state that made the request.

SOURCE: NHTSA, NTS-01.

RAILROAD

- The year 1986 saw railroad accidents and the accident rate per million train miles drop to an 11-year low. Railroad accidents involving trains declined 74 percent since 1976, and the accident rate per million train miles dropped 65 percent in the 11-year period. When 1985 is compared with 1986, train accidents decreased 20 percent -- from 3,275 in 1985 to 2,620 in 1986.

- The total number of railroad and grade crossing fatalities increased from 1,036 in 1985 to 1,090 in 1986, representing a 5.2 percent increase. Of the total number of fatalites reported last year, 56 percent occurred in rail-highway grade crossing accidents. Railroad and rail-highway grade crossing accidents both experienced an increase in fatalities when 1985 is compared with 1986. There were 454 railroad fatalities in 1985 versus 475 in 1986, a 4.6 percent increase, and 582 grade crossing fatalities versus 615, a 5.7 percent increase, during the same periods.

- Injuries resulting from railroad accidents fell from 31,617 in 1985 to 24,178 in 1985; and rail-highway grade crossing injuries also dropped -- from 2,687 in 1985 to 2,453 in 1986.

- When the fourth quarter of 1986 is compared with the fourth quarter of 1985, total railroad and rail-highway grade crossing fatalities declined 13.1 percent. There were 97 railroad fatalities in the fouth quarter of 1985 and 1986. There were 155 grade crossing fatalities in the fourth quarter of 1986 versus 193 in 1985, a 19.7 percent decrease.

TABLE 8.

RAILROAD FATALITIES AND INJURIES, BY TYPE OF PERSON, 1984-1985

	FATALITIES		INJURIES**	
CLASSIFICATION	**1985**	**1986**	**1985**	**1986**
Employees on Duty	46	57	29,822	22,105
Employees Not on Duty	2	2	419	382
Passengers on Trains	3	4	657	686
Nontrespassers	507	504	2,562	2,633
Trespassers	474	519	734	704
Contractor Employees	4	4	110	121
Total Railroad and Grade Crossing	**1,036**	**1,090**	**34,304**	**26,631**
Railroad Only*	454	475	31,617	24,178
Grade Crossing Only	582	615	2,687	2,453

* Includes train and nontrain data.
** Includes occupational illness.

SOURCE: FRA, Office of Safety Analysis, RRS-20.

FIGURE 13A.

RAILROAD ACCIDENT RATE PER MILLION TRAIN MILES, 1976 - 1986

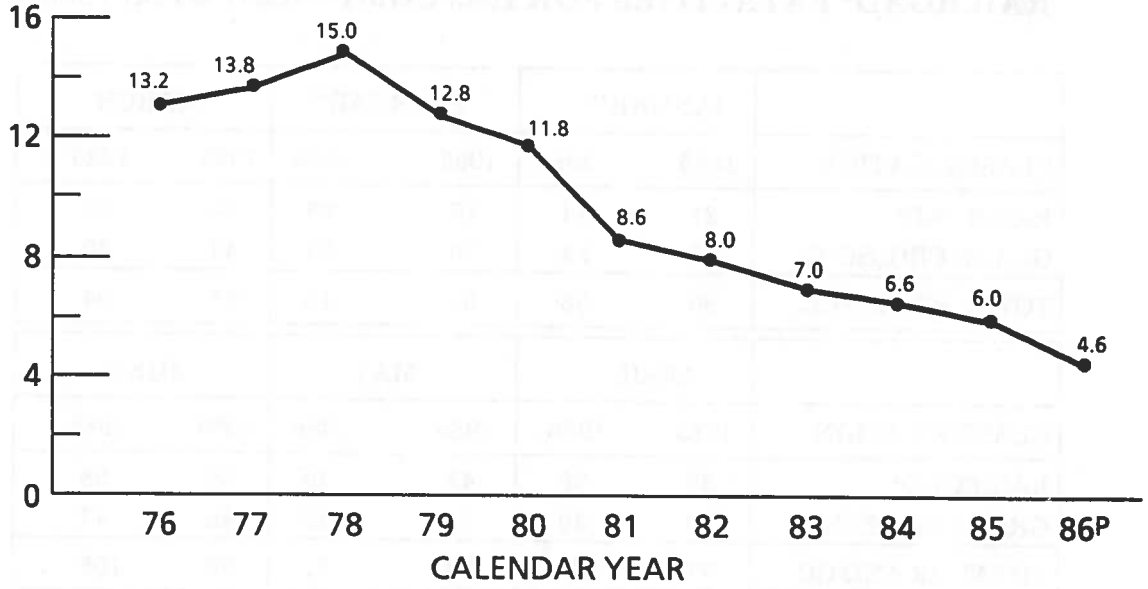
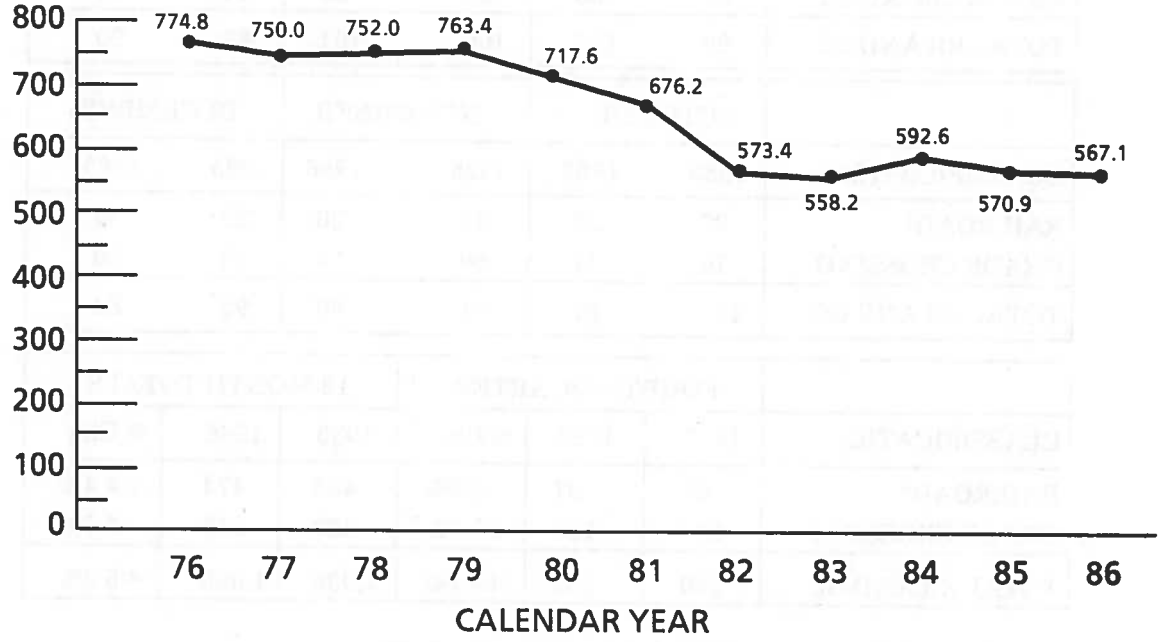


FIGURE 13B.

TOTAL TRAIN MILES (MILLIONS), 1976 - 1986



P = Preliminary.

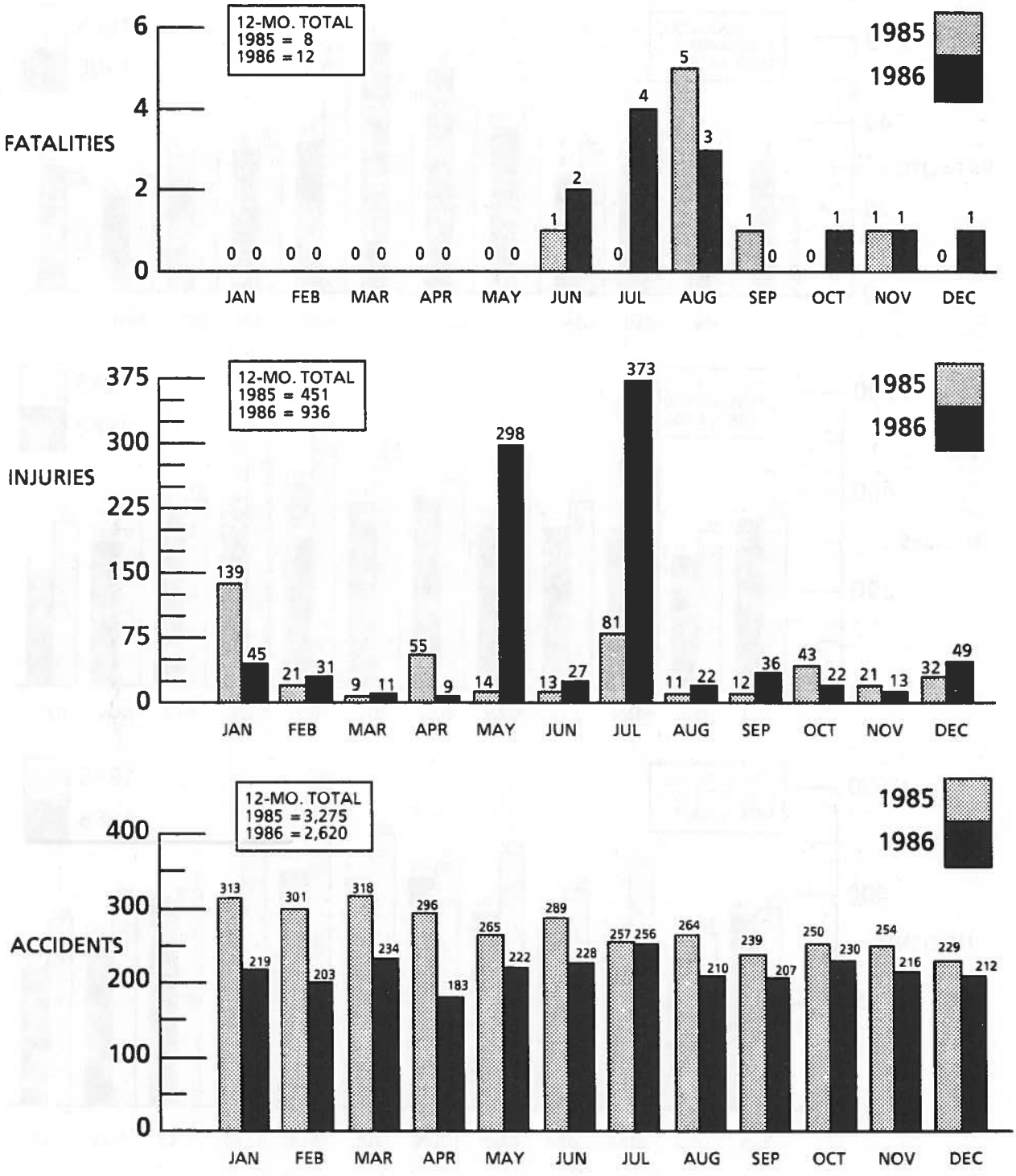
* Train accidents only--also includes those Rail-Highway Grade Crossing accidents which have been classified as Train accidents.

NOTE: Reporting threshold for Train accidents was raised from $750 to $1,750 in 1975, to $2,300 in 1977, to $2,900 in 1979, to $3,700 in 1981, to $4,500 in 1983, and to $4,900 in 1985.

SOURCE: FRA, Office of Safety Analysis, RRS-20.

FIGURE 14.

TRAIN ACCIDENT* FATALITIES, INJURIES AND ACCIDENTS, 1985-1986



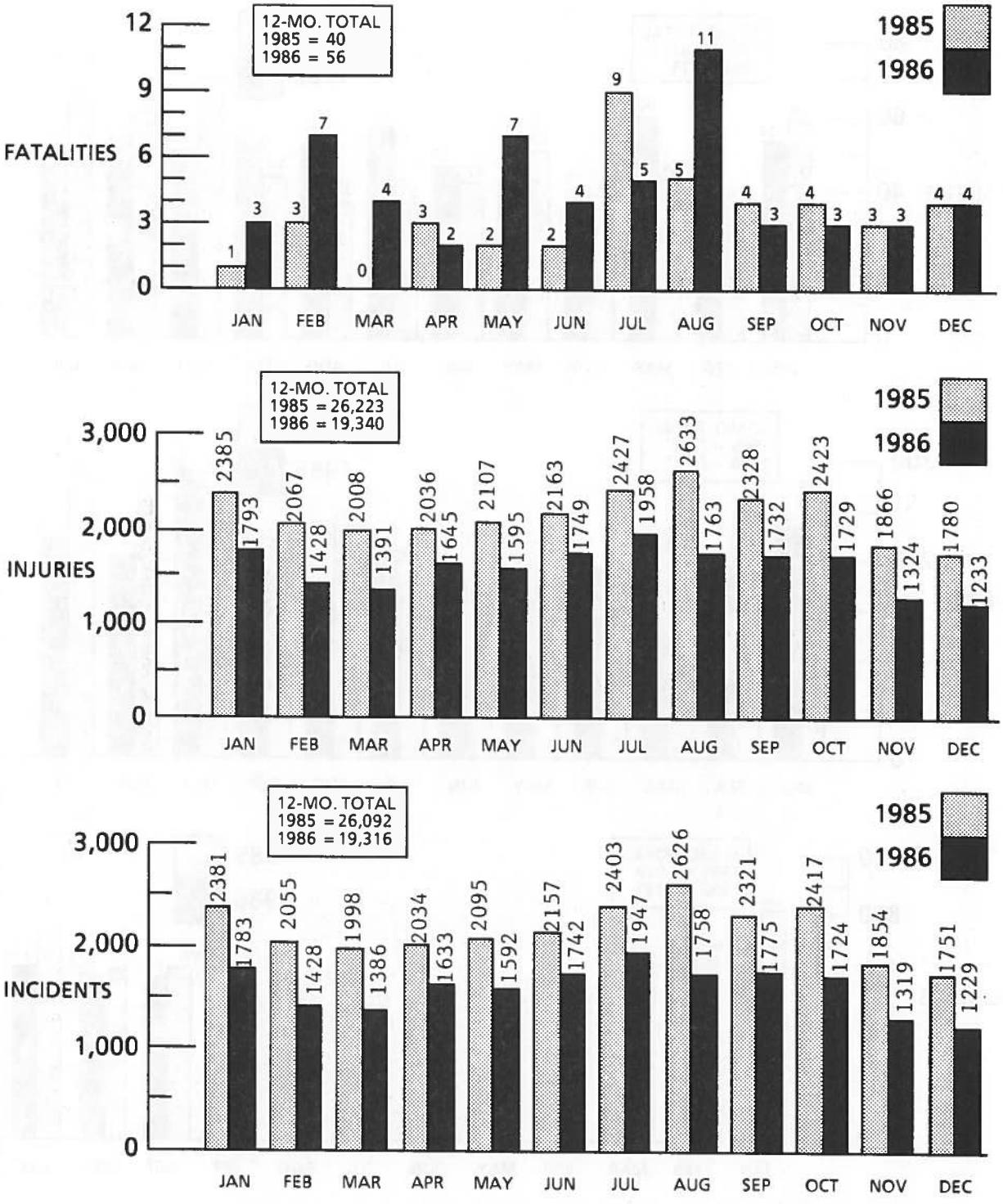
* See Glossary for Train Accident definition. This chart does not include Grade Crossings.

NOTE: 1986 data are preliminary.

SOURCE: FRA, Office of Safety Analysis, RRS-20.

FIGURE 16.

NONTRAIN* FATALITIES, INJURIES AND INCIDENTS, 1985-1986



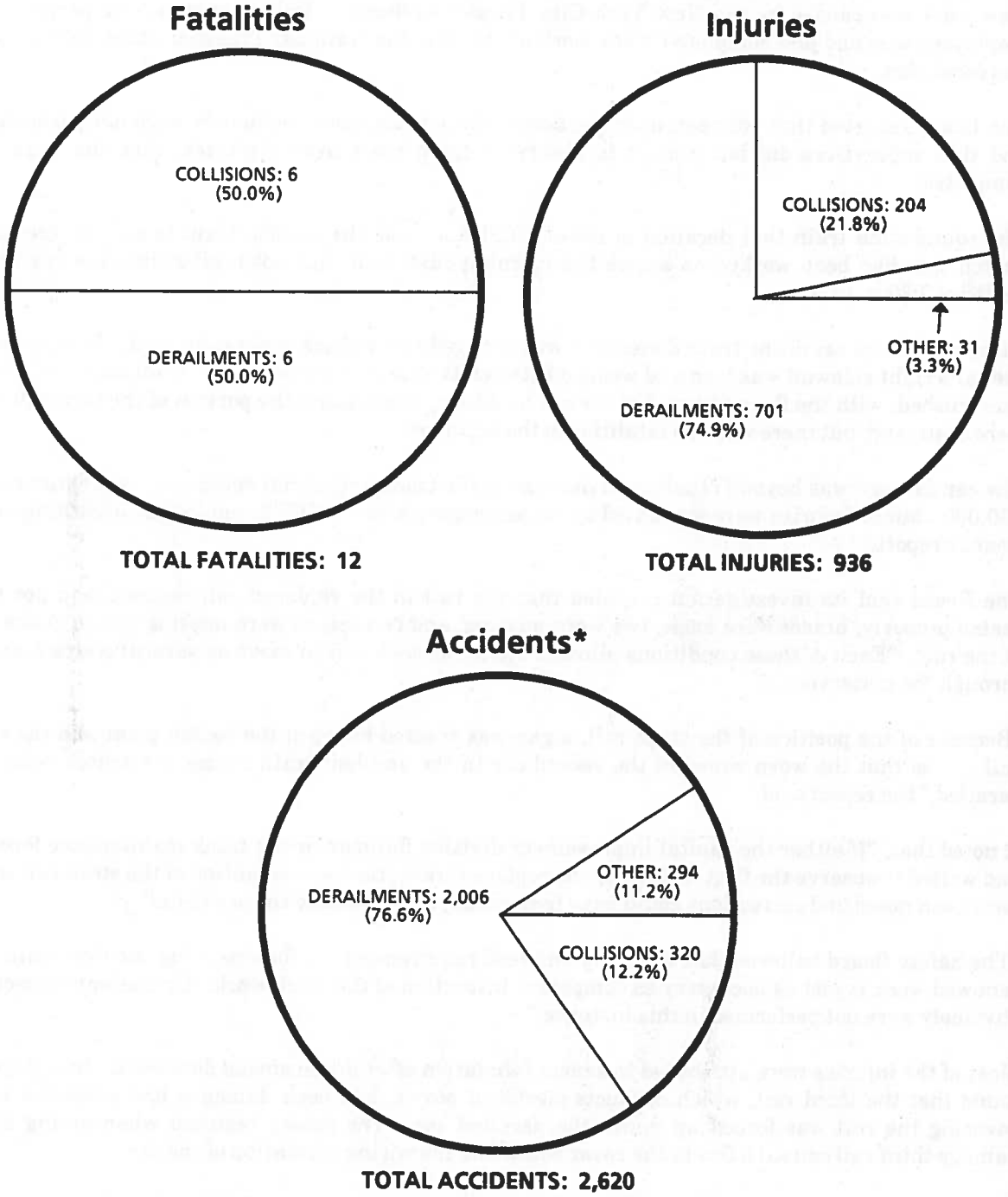
* See Glossary for definition. This chart does not include Grade Crossings.

NOTE: 1986 data are preliminary.

SOURCE: FRA, Office of Safety Analysis, RRS-20.

FIGURE 18.

TRAIN ACCIDENT* FATALITIES, INJURIES, AND ACCIDENTS BY TYPE, 1986



* See Glossary for Train Accident Definition (does not include Train and Nontrain Incidents and Grade Crossing Accidents).

SOURCE: FRA, Office of Safety Analysis, RRS-20.

The report observed that the emergency response was prompt, with the New York Fire Department on the scene within 5 minutes with a full team of firefighters, officers and a division chief in command. The conductor of the derailed train was able to move the passengers "quickly and without panic" to the rear cars in the train and discharge them to the DeKalb Avenue station platform.

SOURCE: NTSB, News Digest, Vol. 5, No. 1.

Collapse of Beaver Dams Led to Flood, Derailment of Amtrak's Montrealer

The collapse of a series of beaver dams during a period of extraordinarily heavy rainfall resulted in a flash flood that washed away track support and led to the derailment near Essex Junction, Vermont, of Amtrak's Montrealer, the National Transportation Safety Board has concluded.

The July 7, 1984 derailment of two locomotive units and seven cars of the northbound train caused the death of 5 persons and seriously injured 26 others. Damage was estimated at in excess of $6.5 million.

In determining the probable cause, the Board made it clear that the beaver dams upstream of the railroad track support embankment were in a "heavily wooded" area and that the dams "were unknown and were not reasonably detectable."

The train, operating over the main line of the Central Vermont Railway, was carrying 277 passengers, 11 Amtrak service employees, and 6 Central Vermont crewmembers, when the derailment occurred shortly before 7 a.m.

The washout occurred at a point where a culvert normally carried Redman Creek under the enbankment supporting the track, about 20 feet above adjacent terrain. However, during the night preceding the accident the area sustained a rainfall that may have been twice the 100-year record, leading to the beaver dams collapsing, and a flow of water that overwhelmed the culvert capacity and washed away the embankment, the Board report said.

It also concluded that the "railroad's line was not flood prone; the magnitude of the rainfall in the area was unreported; traincrews had not seen or reported damage or adverse conditions, and Redman Creek was an unlikely location for a flash flood."

The report noted that although the Burlington National Weather Service Office (NWSO) was only about 5 miles west of the principal storm track, the personnel at the office was unaware of the magnitude of the rainfall. As a result of this finding, the Board recommended to the National Weather Service that it solicite the submission of real-time weather observations from cooperative observers to "provide a more complete overview of selected types of weather parameters at remote locations."

The Board also noted that this accident again demonstrated that the batteries that power radio equipment on some Amtrak locomotive units are in a vulnerable position that makes them prone to damage in a derailment. The Board urged the National Railroad Passenger Corporation (Amtrak) to relocate such batteries in a less vulnerable position above the underframe of its locomotive units so that radio communication might be possible after a derailment.

Because the train involved did not have a radio capable of functioning Central Vermont frequencies, the Board recommended that the Federal Railroad Administration establish regulations concerning the use, installation, maintenance, inspection and frequency compatibility of train radios.

SOURCE: NTSB, News Digest, Vol. 5, No.1.

The Safety Board recommended toxicological tests immediately after a serious accident and pre-employment screening of operating personnel, among other measures. The NTSB said finding of drug involvement in past accidents required "prompt action" by the rapid transit industry, labor unions and government.

The recommendations followed a Safety Board investigation of a rear-end collision on June 26, 1985 in Miami between two Metro-Dade Transportation Administration trains. The Safety Board concluded that drug use by one of the train's operators could have contributed to the accident, which injured 16 and caused some $1.6 million in damage.

The Miami accident was the fifth in nine years for the rail rapid transit industry in which the use of alcohol and/or drugs (both legal and illegal) have been raised as an issue, said the Safety Board. In these accidents, 15 were killed, 350 injured and property damage came to more than $5 million.

"The Safety Board remains concerned that the public and rail rapid transit employees are being placed in life-threatening situations by rapid transit employees who may be affected by licit or illicit drug use," the NTSB said.

In the Miami accident, the NTSB said the probable cause was failure of the rail attendant to follow operating procedures that would have prevented a collision with a standing train. His failure to recognize and react to that emergency condition was due to inattention, distraction or the effect of drugs, said the NTSB.

The Safety Board noted that there is no federal nor uniform state requirement for toxicological tests in the event of a rapid rail transit accident. It said the Urban Mass Transportation Administration has not taken any action to develop requirements like hose imposed by the Federal Railroad Administration and the Federal Aviation Administration.

In its report on the Miami accident, the Safety Board's recommendations included:

- Prohibiting operation of test trains during hours of rail revenue service.
- Instructing rail attendants in the significance of observing speed commands displayed on the operator's console even if the automatic signal/speed control system is bypassed.
- Developing more specific radio rules and procedures.

RAIL RAPID TRANSIT

Users of Rail Rapid Transit (RRT) statistics should exercise caution when comparing accident, fatality, and injury data for the fourth quarter of 1985 and 1986. In 1985, two of the larger transit authorities did not submit reports. All thirteen RRT authorities have submitted data for the first nine months of 1986. As of May 12, 1987, twelve transit authorities have submitted data for October 1986, twelve for November, 1986, and eleven for December, 1986. UMTA has, in conjunction with APTA, revised the reporting system categories and instituted new thresholds. Fires are now reported in a separate fire report and are not included in train accidents. This new reporting system was implemented for Rapid Rail Transit on January 1, 1986. Due to these changes, it is difficult to make comparisons between earlier data and current data.

- There were four RRT revenue train accidents reported in the fourth quarter of 1986, compared with five in the fourth quarter of 1985.

  The following table summarizes train accidents by type for the fourth quarter of 1985 and 1986.

	1985 FOURTH QUARTER	1986* FOURTH QUARTER
Collision with Other Train	2	0
Collision with Obstacle	0	0
Collision with Person	0	2
Derailment	1	0
Fire	0	N/A**
Rail-Highway Crossing	2	2
Totals	**5**	**4**

- RRT train and nontrain accidents/incidents, injuries, and fatalities all experienced a decline when the fourth quarter of 1985 and 1986 are compared (see Table 10). In the fourth quarter of 1985, there were 329 accidents/incidents versus 197 in the same period of 1986. Fatalities and injuries fell from one and 329 to zero and197 , respectively, during these same periods. During the fourth quarter of 1986, the predominant causes of RRT train and nontrain personal casualties (injuries and fatalities) was from persons slipping and falling. Of the 197 casualties reported in the fourth quarter of 1986, 51 took place while boarding the train (25 percent), while in the fourth quarter of 1985, 144 of the 329 casualties reported were the result of slips and falls (44 percent).

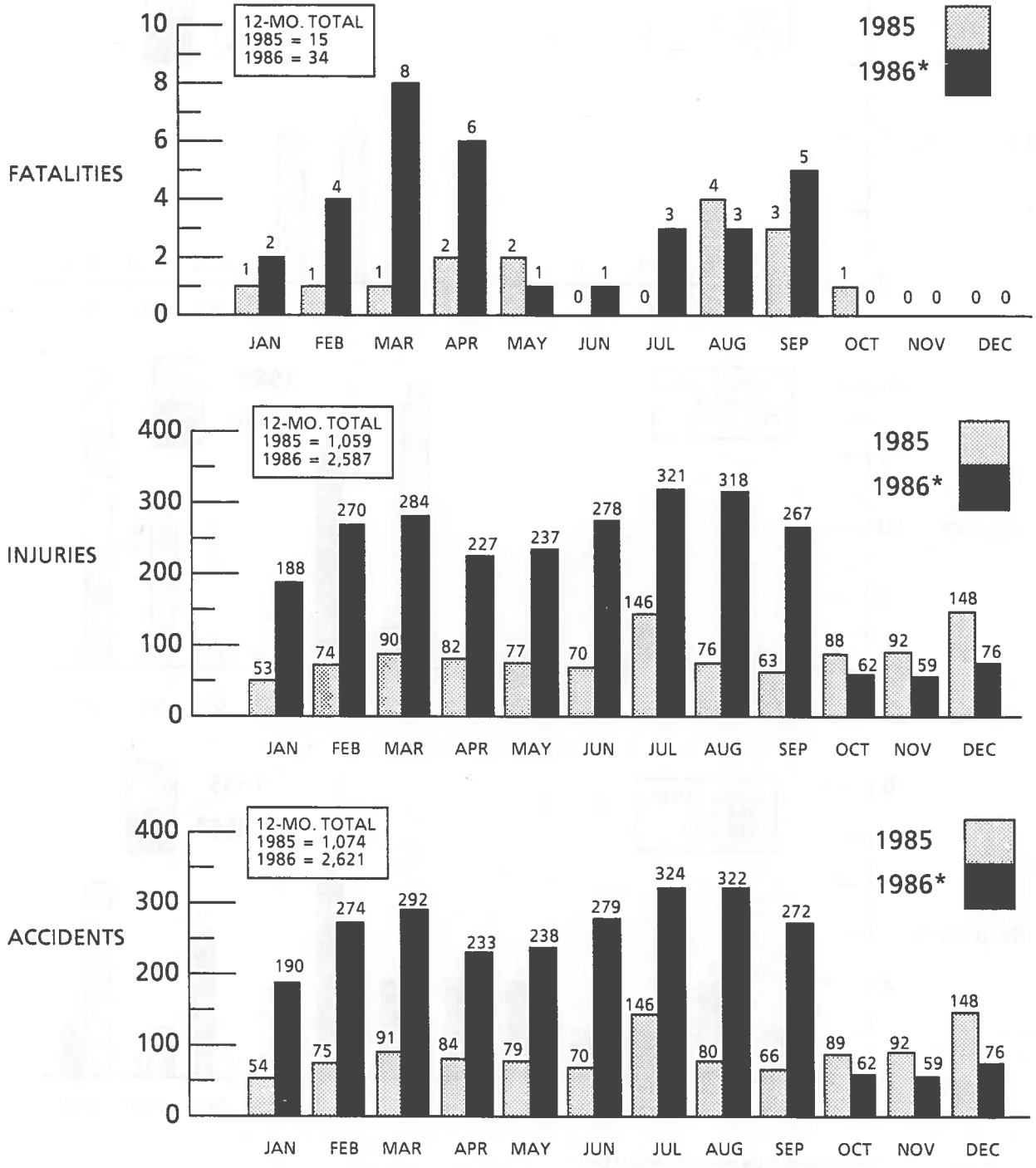
- The total number of RRT train accidents/incidents, injuries and fatalities all more than doubled when 1986 and 1985 data are compared as shown in Table 10. Accidents/incidents increased from 1,074 in 1985 to 2,621 in 1986, injuries rose from 1,059 to 2,587, and fatalities increased from 15 to 34.

* Preliminary data prior to verification.
** In accordance with new thresholds, fires are not reported as accidents. A new fire report form is used to tabulate fires by location of incident
N/A: Not available.

SOURCE: TSC, Safety and Security Divison, DTS-43.

FIGURE 19.

RRT TRAIN FATALITIES, ACCIDENTS AND INJURIES, 1985-1986



* Preliminary data prior to verification

NOTE: In 1985, two of the larger transit authorities did not submit reports, this accounts for the increase in casualties (injuries and fatalities) in 1986.

SOURCE: TSC, Transit Safety and Security Division, DTS-43, SIRAS

MODAL SAFETY HAZARDS

From the preliminary data reported, the major cause of RRT revenue train accidents in 1986 were from trains striking an obstacle, a person, and a highway vehicle. Of the 19 train accidents in 1986, five each were of these three types, one train striking a train, and three derailments.

The goal of any transit safety program should be to provide transit patrons with the highest level of safety practical. The key work in word in the statement is "practical". No safety program can provide for the absolute safety of a transit system. What a safety program can and should do is minimize the risk associated with the use or operation of the system. In mass transit, the Urban Mass Transportation Administration Office of Technical Assistance has developed a program to promote and maintain in the transit industry a strong awareness of the need for safety and to provide the transit industry with tools to assist them in accomplishing the goal of providing to transit patrons the highest level of safety practical.

SOURCE: TSC, Safety & Security Systems Division, DTS-43, SIRAS

SAFETY PROGRAM HIGHLIGHTS

Emergency Preparedness

In an emergency situation, the major goal of the transit system is to minimize the effect of or consequences of the emergency situation. To accomplish this, the transit system and emergency response personnel must be prepared to evacuate patrons from the hazardous areas. Patron evacuation and the timely response of emergency personnel is extremely important considering that transit systems operate in confined underground tunnels and on elevated structures. To assist transit systems in effectively responding to emergency situations, UMTA initiated the development of Automated Emergency Response System (AERS). This microcomputer based decision making aid is designed to provide transit system control center staff with a tool to assist them in organizing and coordinating their response. Phase 1 of this system is presently being evaluated at three systems, Phase 2 is expected to be completed this year.

SOURCE: TSC, Safety & Security Systems Division, DTS-43, SIRAS

Rail System Safety Training

To assist transit operators in the development and implementation of system programs, the Urban Mass Transportation Administration has sponsored the development of a training course entitled Mass Transit Rail System Safety. This week-long course, presented at host transit systems, focuses on system safety concepts, analysis techniques and their application in the design and operation of transit systems. Course attendees are provided with a working knowledge of the system safety concept and examples of how to apply system safety to identify and solve prospective transit system hazards.

SOURCE: TSC, Safety & Security Systems Division, DTS-43, SIRAS

AVIATION

Beginning in January 1982, the National Transportation Safety Board began reporting aviation accident data according to the Federal Aviation Regulations under which the aircraft was operated at the time of an accident. Revenue operations of Air Carriers, Commercial Operators and deregulated All Cargo Carriers, using large aircraft, are conducted under 14 CFR 121, 125, and 127. Commuter Air Carriers' (scheduled) and On-Demand Air Taxi Operators (unscheduled) revenue operations (using small aircraft) are conducted under 14 CFR 135. Accidents involving flights not being conducted under either 14 CFR 121 or 14 CFR 135 are grouped by the Safety Board into the "General Aviation" category.

AIR CARRIER

- After achieving a record high rate in 1985 with seven fatal accidents, U.S. air carriers flying large aircraft dropped to two fatal accidents in 1986 -- one in each scheduled service and nonscheduled or charter flying. During the same period, total U.S. air carrier accidents rose from 23 to 25.

- There were four fatalities in all U.S. air carrier operations during 1986 compared with 526 in 1985.

- Commuter carriers had two fatal accidents and four fatalities in 1986, compared with seven fatal accidents and 37 fatalities in 1985. There were 0.08 fatal accidents for every 100,000 departures in 1986 versus 0.27 in 1985, which represents a 70 percent reduction in the fatal accident rate. The total of 14 accidents recorded by commuter carriers in 1986 was a record low and a 33.4 percent decrease from the 22 accidents in 1985.

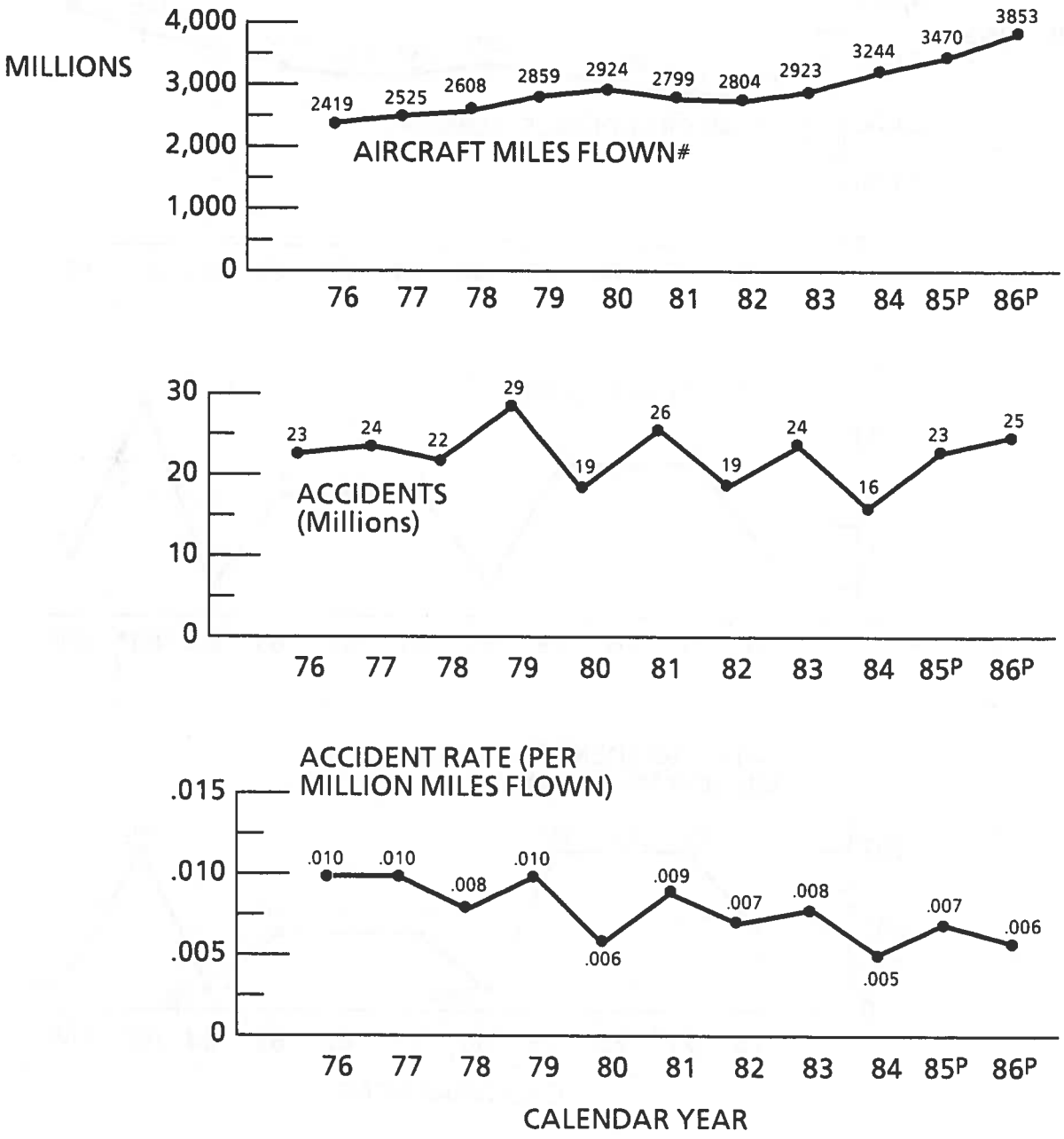
- The fatal accident rate for on-demand air taxis declined 11 percent during 1986. On-demand air taxis recorded 31 fatal accidents and 64 fatalities in 1986 versus 35 fatal accidents and 76 fatalities in 1985, resulting in 11 and 17.9 percent decreases, respectively. Total on-demand air taxi accidents decreased 23 percent in 1986 -- from 152 in 1985 to 118 in 1986.

- During the fourth quarter of 1986, there were five U.S. air carrier accidents compared with three during the same period of 1985. The one fatal accident reported in the fourth quarter of 1985, at Gander, Newfoundland, resulted in 256 fatalities, while one fatal accident and one fatality occurred in the fourth quarter of 1986. Serious injuries declined from six to five in the fourth quarter of 1985 and 1986, respectively.

- Commuter carriers experienced a decrease in fatalities and serious injuries while fatal accidents remained constant and total accidents increased, when the fourth quarter of 1986 is compared with the same 1985 period. However, on-demand air taxis recorded a decrease in fatalities, fatal accidents, and serious injuries with total accidents remaining constant during the same periods.

FIGURE 22.

ACCIDENT RATES FOR U.S. AIR CARRIERS ALL SCHEDULED AND NONSCHEDULED SERVICE* 1976 - 1986



P = Preliminary.

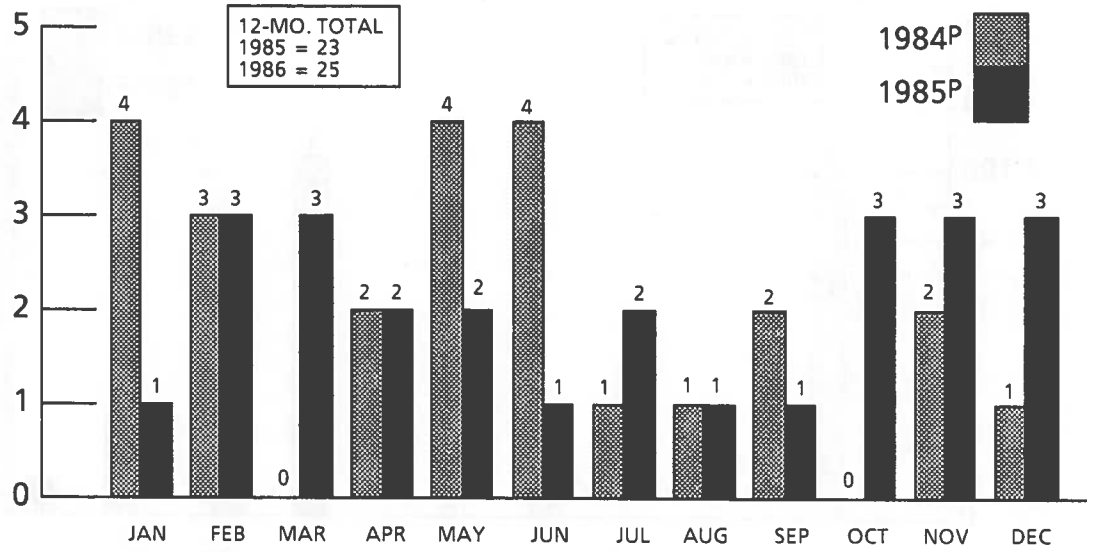
* Includes accidents involving deregulated all cargo air carriers and commercial operators of large aircraft when those accidents occurred during 14 CFR 121, 125, and 127 operations.

\# Source of data: 1975-1984, CAB; 1985/1986, DOT.

SOURCE: NTSB, Accident Data Division, SP-30.

FIGURE 24.

U.S. AIR CARRIER ACCIDENTS*, 1985 - 1986

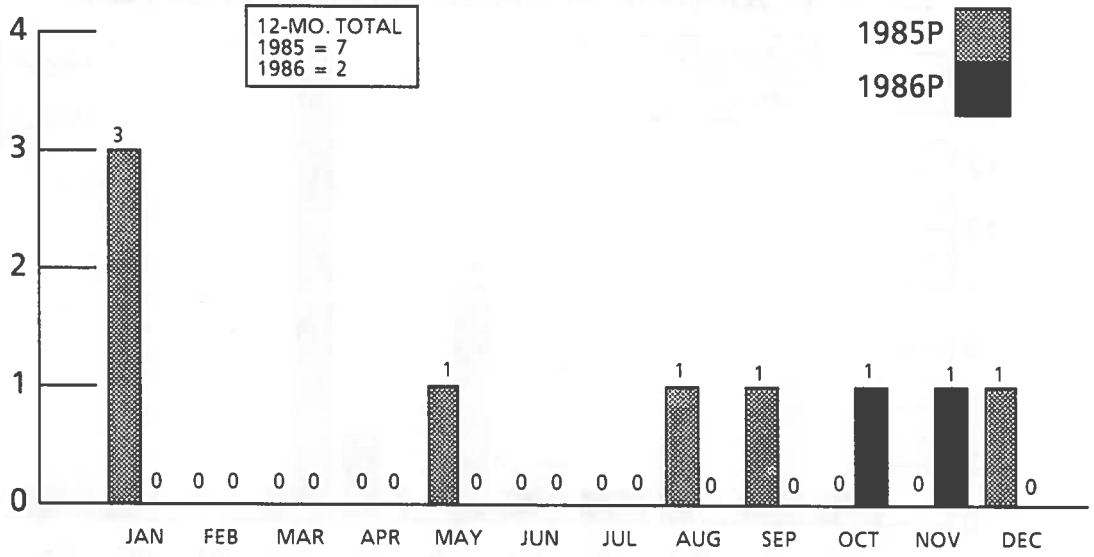


P = Preliminary.
* All large carriers operating under 14 CFR 121, 125, and 127.

SOURCE: NTSB, Accident Data Division, SP-30.

FIGURE 25.

U.S. AIR CARRIER* FATAL ACCIDENTS, 1985 - 1986

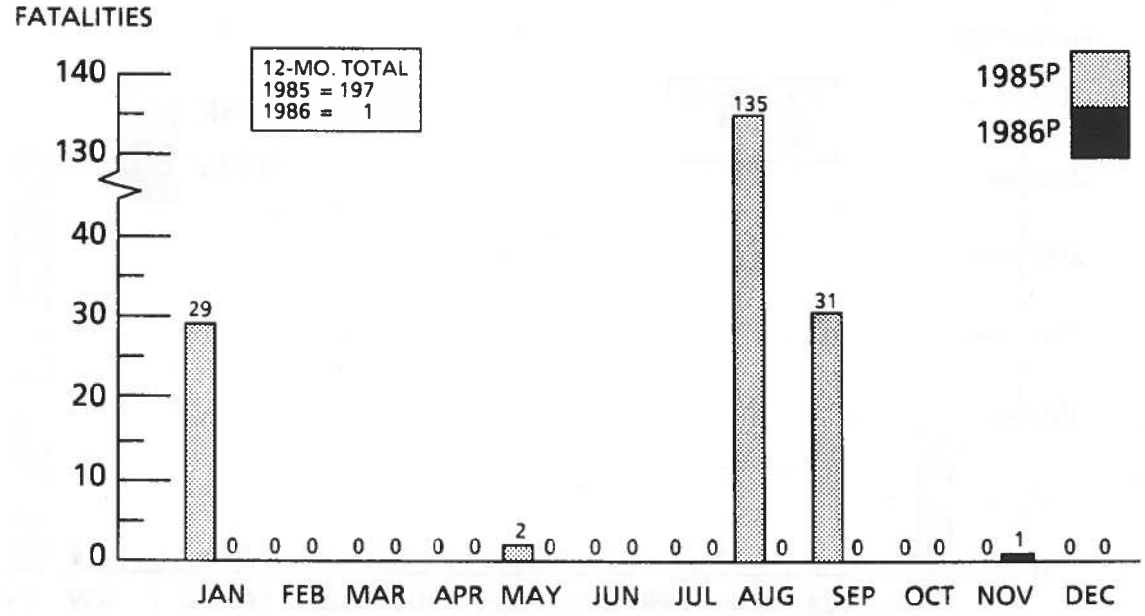


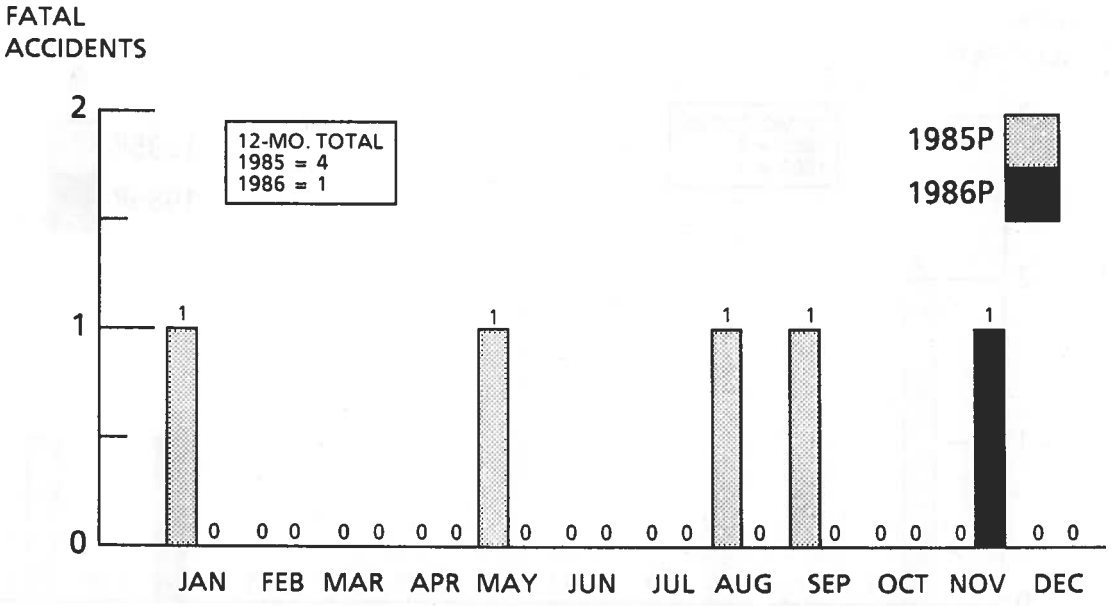
P = Preliminary.
* All large carriers operating under 14 CFR 121, 125, and 127.

SOURCE: NTSB, Accident Data Division, SP-30.

FIGURE 28.

U.S. AIR CARRIER FATALITIES AND FATAL ACCIDENTS ALL SCHEDULED SERVICE* 1985 - 1986



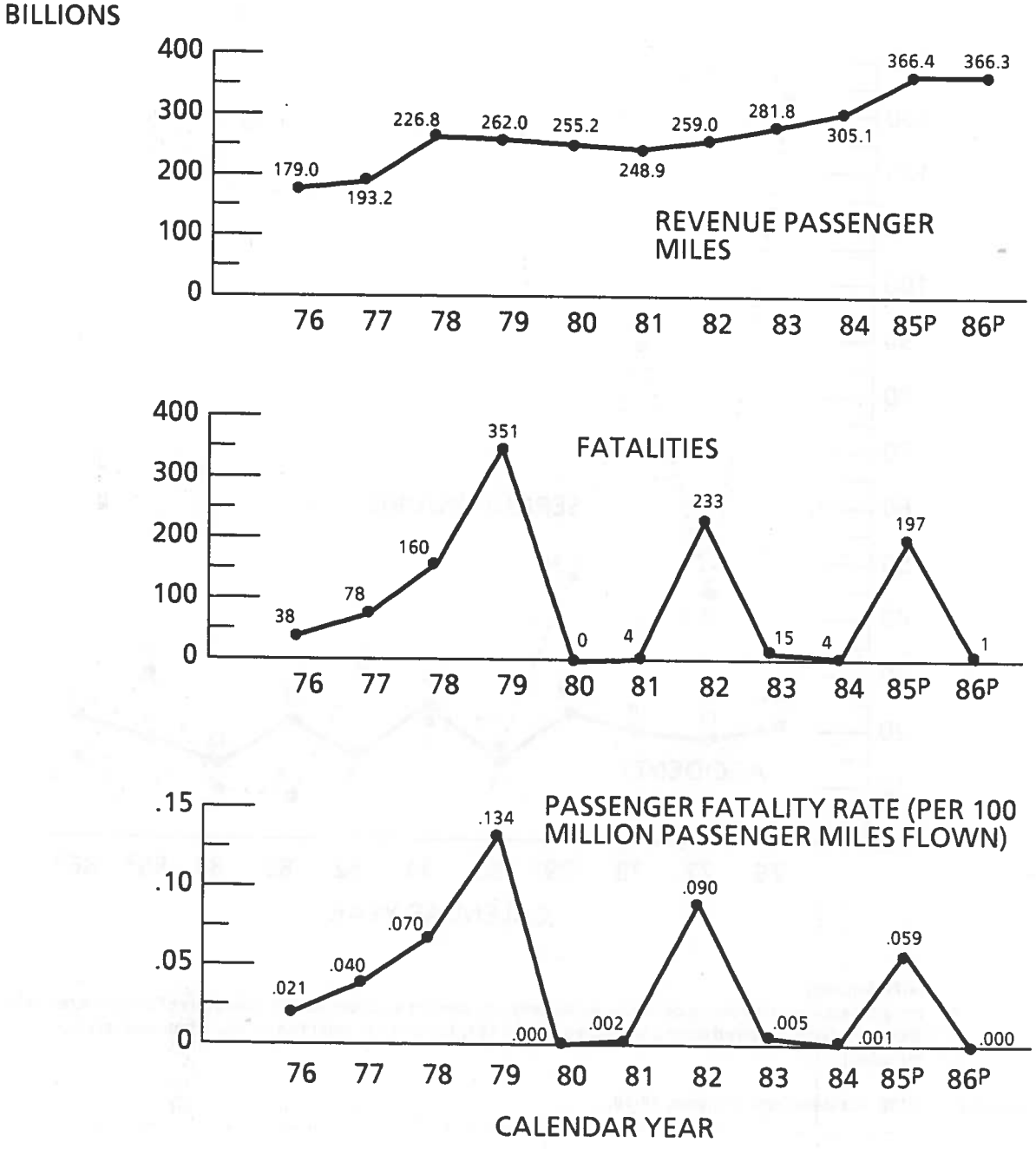


P = Preliminary.
* All scheduled service operating under 14 CFR 121, 125, and 127.

Source: NTSB, Accident Data Division, SP-30.

FIGURE 30.

U.S. AIR CARRIER PASSENGER FATALITY RATES
ALL SCHEDULED REVENUE PASSENGER SERVICE*
1976 - 1986



P = Preliminary.
* All scheduled service operating under 14 CFR 121, 125 and 127. Nonscheduled service not included.
\+ 209 Passenger fatalities were used in computing rates (1 fatality resulting from sabotage 8/11/82 in Honolulu, HI, was excluded).

SOURCE: NTSB, Accident Data Division, SP-30.

TABLE 12.

COMMUTER CARRIERS* ACCIDENTS, FATALITIES AND INJURIES 1985-1986

	JANUARY		FEBRUARY		MARCH	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
FATALITIES	0	0	11	0	0	3
FATAL ACCIDENTS	0	0	2	0	0	1
TOTAL ACCIDENTS	1	1	2	2	2	1
SERIOUS INJURIES	2	0	0	0	0	4

	APRIL		MAY		JUNE	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
FATALITIES	1	0	0	0	0	0
FATAL ACCIDENTS	1	0	0	0	0	0
TOTAL ACCIDENTS	3	2	3	3	0	0
SERIOUS INJURIES	3	0	5	1	0	0

	JULY		AUGUST		SEPTEMBER	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
FATALITIES	1	0	8	0	14	0
FATAL ACCIDENTS	1	0	1	0	1	0
TOTAL ACCIDENTS	1	0	4	0	2	1
SERIOUS INJURIES	0	0	0	0	0	0

	OCTOBER		NOVEMBER		DECEMBER	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
FATALITIES	0	1	2	0	0	0
FATAL ACCIDENTS	0	1	1	0	0	0
TOTAL ACCIDENTS	0	2	1	1	2	2
SERIOUS INJURIES	0	5	2	0	4	0

	FOURTH QUARTER			12-MONTH TOTALS		
CLASSIFICATION	1985	1986	% Chg	1985	1986	% Chg
FATALITIES	2	1	-50.0	37	4	-89.2
FATAL ACCIDENTS	1	1	0.0	7	2	-71.4
TOTAL ACCIDENTS	3	5	+66.6	21	15	-28.6
SERIOUS INJURIES	6	5	-16.6	16	10	-37.5

NOTE: 1985 and 1986 data are preliminary.
* All scheduled service operating under 14 CFR 135.

SOURCE: NTSB, Accident Data Division, SP-30.

TABLE 14.

COMMUTER AIR CARRIERS* ACCIDENTS, FATALITIES AND ACCIDENT RATES, 1976 - 1986

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985P	1986P
Fatalities	27	32	48	66	37	34	14	11	48	37	4
Fatal Accidents	9	9	14	15	8	9	5	2	7	7	2
Total Accidents	35	44	61	52	38	31	26	18	22	22	14
Serious Injuries	15	15	32	45	14	24	28	12	23	16	10
Fatal Accident Rate**+	0.05	0.04	0.06	0.08	0.04	0.05	0.02	0.01	0.02	0.02	0.01
Total Accident Rate**+	0.20	0.22	0.27	0.27	0.20	0.16	0.12	0.07	0.08	0.07	0.05
Fatal Accident Rate#+	0.59	0.52	0.70	0.80	0.45	0.49	0.25	0.09	0.26	0.27	0.08
Total Accident Rate#+	2.28	2.53	3.06	2.76	2.14	1.69	1.28	0.77	0.82	0.86	0.58

P = Preliminary.
* All scheduled service operating under 14 CFR 135.
** Per million aircraft miles flown.
\+ Rates are based on all accidents including some involving operators not reporting traffic data formerly to the CAB, now to DOT.
\# Per 100,000 departures.

SOURCE: NTSB, Accident Data Division, SP-30.

TABLE 15.

ON-DEMAND AIR TAXIS* ACCIDENTS, FATALITIES AND ACCIDENT RATES, 1976 - 1986

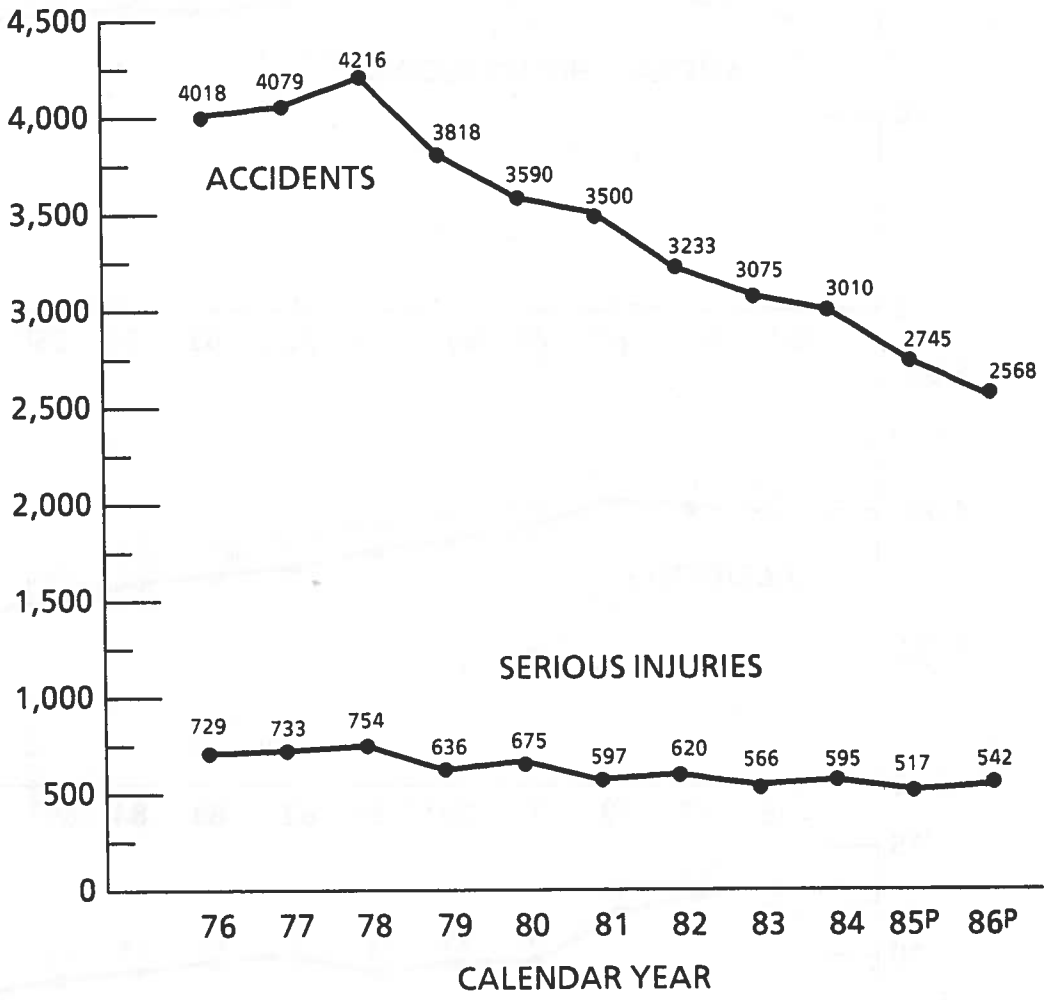
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985P	1986P
Fatalities	100	118	155	77	105	94	72	62	52	76	64
Fatal Accidents	31	31	54	30	46	40	31	27	23	35	31
Total Accidents	137	158	198	160	171	157	132	140	146	152	118
Serious Injuries	39	40	67	32	43	37	39	29	35	43	27
Fatal Accident Rate**	1.15	0.94	1.52	0.81	1.27	1.38	0.95	1.05	0.75	1.26	1.12
Total Accident Rate**	5.07	4.78	5.58	4.34	4.73	5.42	4.05	5.44	4.74	5.46	4.27

P = Preliminary.
* Nonscheduled service operating under 14 CFR 135.
** Per 100,000 aircraft hours.

SOURCE: NTSB, Accident Data Division, SP-30.

FIGURE 33.

U.S. GENERAL AVIATION* ACCIDENTS AND SERIOUS INJURIES 1976 - 1986

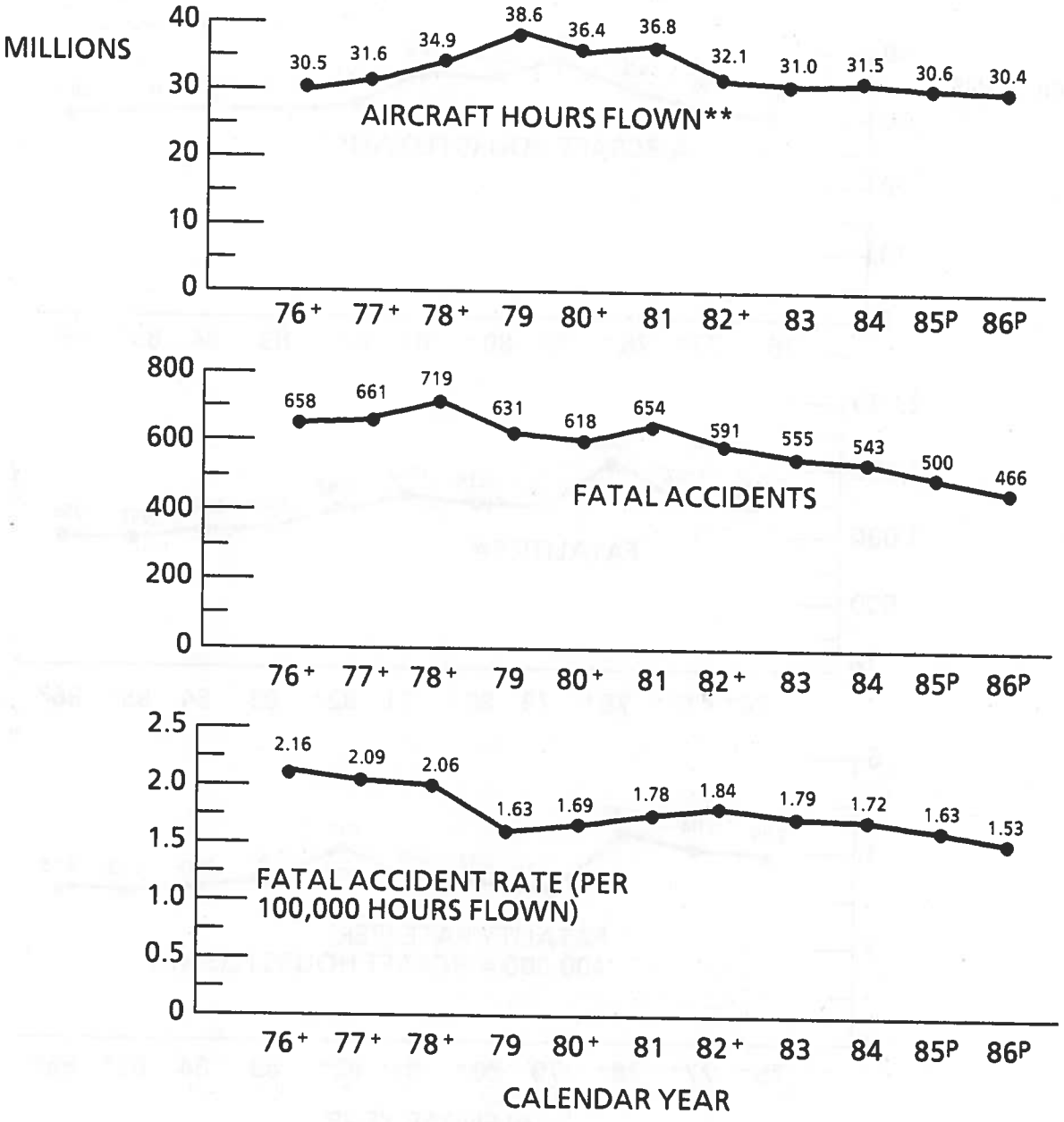


P = Preliminary.
* All operations other than those operated under 14 CFR 121, 125, 127 and 14 CFR 135.

SOURCE: NTSB, Accident Data Division, SP-30.

FIGURE 35.

U.S. GENERAL AVIATION* FATAL ACCIDENTS AND RATES 1976 - 1986



P = Preliminary.

* All operations other than those operated under 14 CFR 121, 125, 127 and 14 CFR 135.

** Source of estimate: FAA.

\+ Suicide/sabotage accidents included in all computations except rates (1975 - 2, 1976 - 4, 1977 - 1, 1978 - 2, 1980 - 1, 1982 - 3).

SOURCE: NTSB, Accident Data Division, SP-30.

TABLE 16.

GENERAL AVIATION FATALITIES BY TYPE OF FLYING, 1985-1986

	JANUARY		FEBRUARY		MARCH		APRIL	
CLASSIFICATION	1985	1986	1985	1986	1985	1986	1985	1986
PERSONAL	39	52	36	29	39	50	82	41
BUSINESS	7	17	13	9	14	13	8	11
CORPORATE/EXECUTIVE	4	2	4	0	1	0	0	7
AERIAL APPLICATION	0	1	0	0	0	0	3	2
INSTRUCTIONAL	2	1	7	3	2	7	3	5
OTHER	4	0	8	5	4	7	9	4
TOTAL GENERAL AVIATION	56	73	68	46	60	77	105	70

	MAY		JUNE		JULY		AUGUST	
CLASSIFICATION	1985	1986	1985	1986	1985	1986	1985	1986
PERSONAL	53	65	32	50	57	60	77	155
BUSINESS	8	19	11	6	12	6	12	7
CORPORATE/EXECUTIVE	1	0	2	0	1	0	0	3
AERIAL APPLICATION	1	1	2	10	0	6	2	0
INSTRUCTIONAL	0	2	7	0	1	6	8	3
OTHER	14	11	16	34	14	5	4	1
TOTAL GENERAL AVIATION	77	98	70	100	85	83	103	169

	SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
CLASSIFICATION	1985	1986	1985	1986	1985	1986	1985	1986
PERSONAL	46	35	66	37	60	51	57	59
BUSINESS	7	14	15	7	3	8	9	6
CORPORATE/EXECUTIVE	0	0	0	0	12	0	9	6
AERIAL APPLICATION	1	3	0	0	0	0	0	0
INSTRUCTIONAL	4	0	5	1	9	5	5	2
OTHER	22	8	4	4	11	6	7	5
TOTAL GENERAL AVIATION	80	60	90	49	95	70	87	78

	FOURTH QUARTER			12- MONTH TOTAL		
CLASSIFICATION	1985	1986	% Chg	1985	1986	% Chg
PERSONAL	183	147	-19.7	644	684	+6.2
BUSINESS	27	21	-22.2	119	123	+3.4
CORPORATE/EXECUTIVE	21	6	-71.4	34	18	-47.1
AERIAL APPLICATION	0	0	0.0	9	23	+155.6
INSTRUCTIONAL	19	8	-57.9	53	35	-34.0
OTHER	22	15	-31.8	117	90	-23.1
TOTAL GENERAL AVIATION	272	197	-27.6	976	973	-0.3

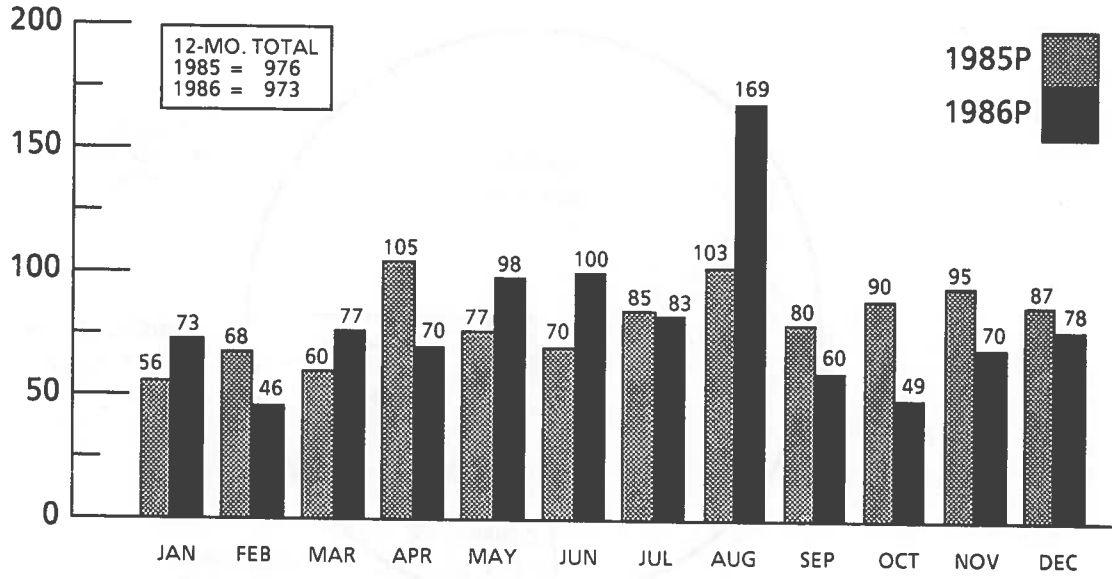
[1] Not calculable

NOTE: 1985 and 1986 data are preliminary.

SOURCE: NTSB, Accident Data Division, SP-30.

FIGURE 39.

U.S. GENERAL AVIATION* FATALITIES, 1985 - 1986

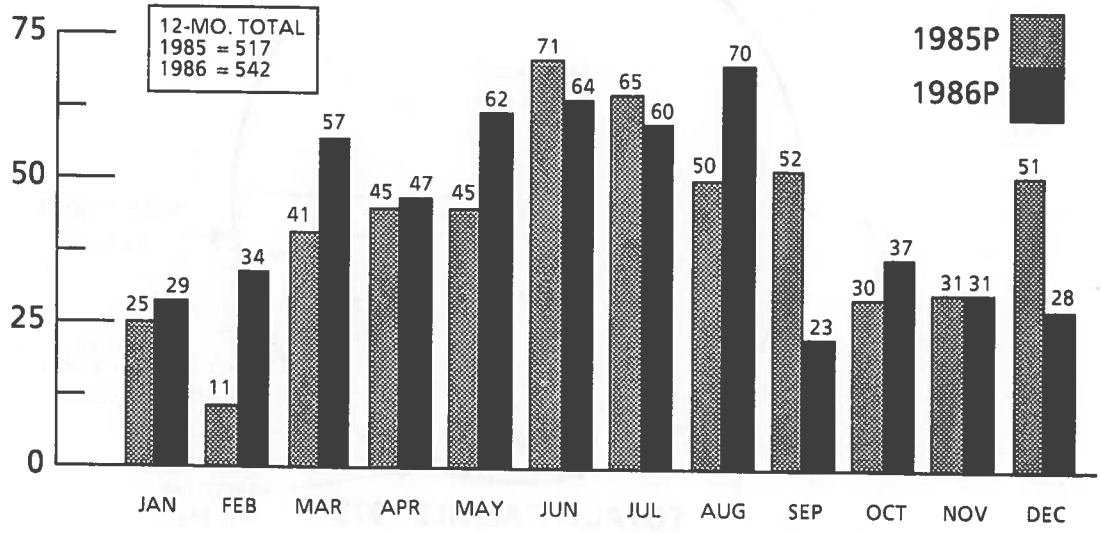


P = Preliminary.
* All operations other than those operations under 14 CFR 121, 125, 127, and 135.

SOURCE: NTSB, Accident Data Division, SP-30.

FIGURE 40.

U.S. GENERAL AVIATION* SERIOUS INJURIES, 1985 - 1986



P = Preliminary.
* All operations other than those operations under 14 CFR 121, 125, 127, and 135.

SOURCE: NTSB, Accident Data Division, SP-30.

Crew, Procedures, and Wind Shear Information Cited in Dallas Crash

A decision by the flightcrew to initiate and continue a landing approach through a thunderstorm, lack of specific procedures for wing shear avoidance, and lack of wind shear information led to the fatal crash of Delta Flight 191 at Dallas-Fort Worth airport August 2, 1985, the National Transportation Safety Board has concluded. The crash killed 135 people.

The Board said the airplane, a Lockheed L-1011 with 163 people aboard, penetrated a microburst wind shear below the thunderstorm,, successfully flew through the microburst, then, attempting to transit the second part, touched the ground over a mile north of the approach end of the runway.

According to the Board, initial ground contact was soft. In fact, the plane got airborne again before crossing State Highway 114 at the north end of the airport. There,the plane struck a car and a light pole and began to break up. If subsequently collided with two water tanks on airport property 1,700 feet beyond the highway.

In determining the flightcrew's role in the accident, the Board evaluated the information about the thunderstorm available to the crew, including sighting by the first officer of lightning in front of the airplane about 90 seconds before the crash. The Board concluded that the flightcrew had enough information to decide that they should avoid the thunderstorm.

The failure of the flightcrew to recognize the severity of the weather, the Board explained, may have been due to the fact that the wind shear detection equipment at Dallas-Fort Worth airport did not give an alarm until after the accident -- because the weather at the airport was clear within two minutes of landing -- or because several flightcrews of airplanes landing before Delta 191 had not reported any difficulties or unusual conditions either on the approach or after landing.

The Board said the radar at Fort Worth's Air Route Traffic Control Center Weather Service Unit probably detected the cell as it intensified, but because no one was monitoring the radar display at the time, no alert was transmitted to the air traffic control tower.

The Board also noted that guidance to the crew on thunderstorm avoidance in the Delta Flight operations procedures manual was not specific enough. The manual states only the below 10,000 feet, thunderstorms are to be avoided by five miles.

According to the Board, "Although . . . the accident could have been avoided had the procedures contained in the Delta thunderstorm avoidance policy been followed, the absence of more specific operational guidelines for avoiding thunderstorms in the terminal areas provided less than optimum guidance to the captain and flightcrew. The circumstances of this accident indicate that there is an apparent lack of appreciation on the part of some, and perhaps many, flightcrews of the need to avoid thunderstorms and to appraise the position and severity of the storms pessimistically and cautiously. The caption of flight 191 apparently was no exception. Consequently, the Safety Board believes that thunderstorm avoidance procedures should address each phase of an air carrier's operation and, in particular, the carriers should provide specific avoidance procedures for terminal area operations."

The Board said the probable causes of the accident were: "the flightcrew's decision to initiate and continue the approach into a cumulonimbus cloud which they observed to contain visible lightning, the lack of specific guidelines, procedures, and training for avoiding and escape from low-altitude wind shear, and the lack of definitive, real-time wind shear hazard information. This resulted in the aircraft's encounter at low altitude with a microburst-induced, severe wind shear from a rapidly developing thunderstorm located on the final approach course."

The Safety Board also repeated an earlier recommendation for the installation of interphones for pilots in high noise-level cockpits. "While crew communication in the absence of CVR information, and interphone systems certainly would have enhanced their ability to communicate, the lack of which may have been a factor in the accident," the Board said.

It also expressed concern about the general high turnover among commuter pilots attracted by larger air carriers. While ground and flight training satisfied the FAA's minimum standards, said the Board, "the operational training of the pilot workforce appears to have been accelerated by necessity, thereby narrowing the company's margin of safety."

Separately, the Board issued a series of recommendations addressing a number of major safety issues common to the Bar Harbor Airlines' accident and two other similar ones. The recommendations call for, among other things, improvements involving: pilot experience, testing and training; use of simulators; cockpit standardization and noise levels; FAA surveillance; crew coordination; use of ground proximity warning devices and runway visibility markers.

SOURCE: NTSB, News Digest, Vol. 5, No. 3.

SAFETY PROGRAM HIGHLIGHTS

Safety Board Report Urges Steps to Curb Runway Collision Danger

The National Transportation Safety Board (NTSB) has concluded that more than a dozen measures should be undertaken to reduce the potential danger of aircraft collisions or other unsafe activity on or near runways at U.S. airports.

The recommendations were made to the Federal Aviation Administration (FAA) following a special investigation of 26 such incidents by the Safety Board. The investigation followed a near collision of two DC-10's at the Minneapolis-St. Paul International Airport in March 1985. One plane was taking off while the other was authorized to taxi across the same runway.

The Safety Board called for:

- Improved training for tower controllers, ranging from use of simulation practices to development of memory aids.
- Better control tower supervision and coordination.
- More precise and standardized operating practices by both controllers and pilots.
- Improved reporting and investigation of runway incursion incidents.
- Adequate runway and taxiway signs.

The Safety Board, noting a rise in runway incidents in the last year or so, said the magnitude of the problem could not be measured because of both incomplete reporting and lack of follow-up investigations by the FAA. The NTSB said it believes that recent FAA efforts to halt runway incursions will lead to a reduction in such incidents. NTSB added:

"However, many of the projects are incomplete and the effectiveness of them is questionable unless some of the basis ATC (air traffic control) problems involving adequacy of controller training,

inspectors normally drawn from outside the FAA region in which the certificate is held. This inter-regional utilization of inspectors helps promote standardization of inspection activities through application of national NASIP guidelines. In 1986, a large number of potential and actual safety-related deficiencies were identified and appropriate action initiated. The FAA plan is to schedule major air carriers for NASIP inspection about once every three years, or about fifty major inspections each year. This continued examination of the aviation industry will focus on any need for more frequent inspections system-wide to promote increased levels of compliance.

SOURCE: FAA, Annual Report on the Effect of the Airline Deregulation Act on the Level of Air Safety

MARINE

WATERBORNE

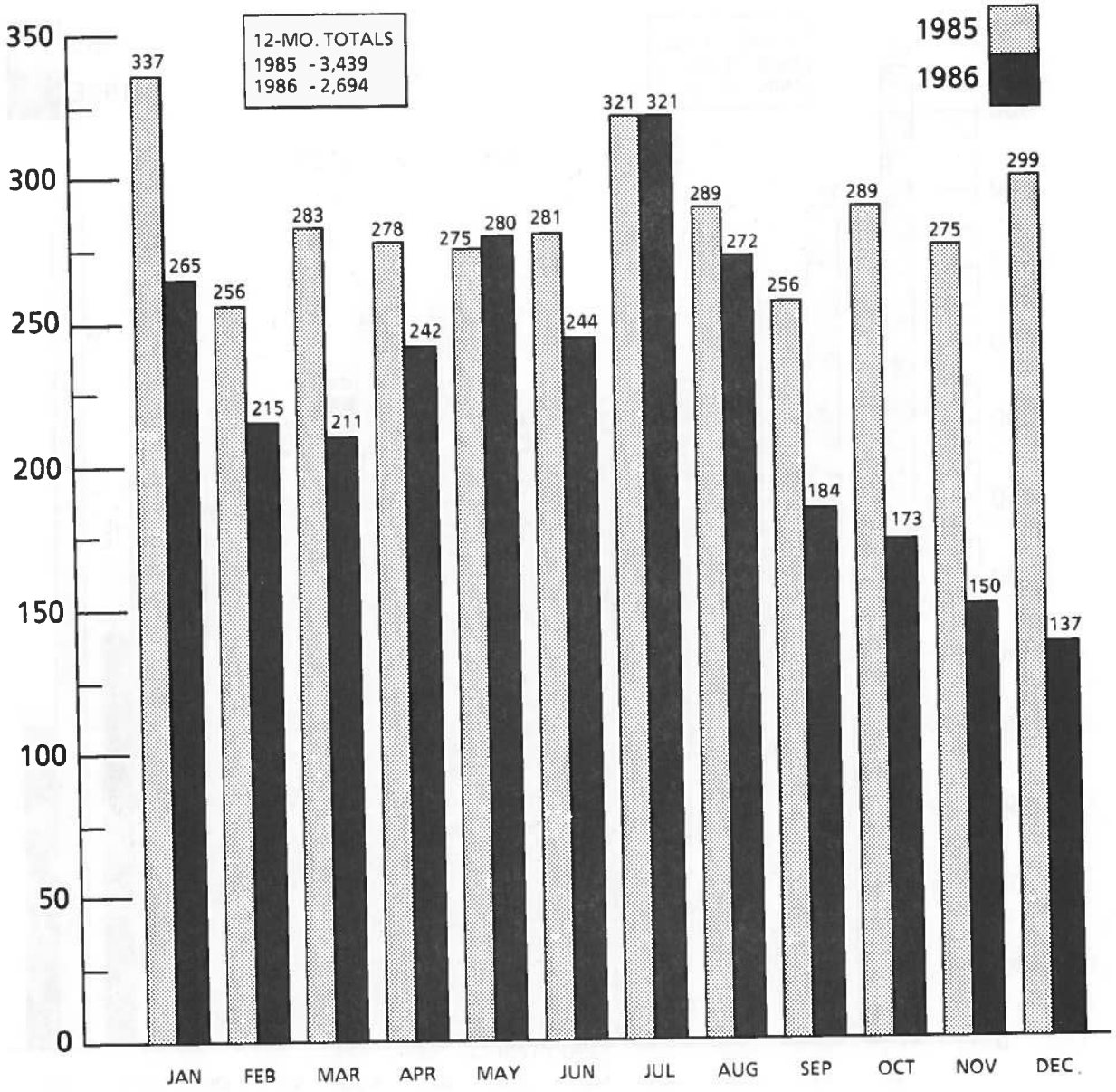
Users of Waterborne statistics should exercise caution when comparing accident, fatality, and injury data for 1985 and 1986. Data for 1986 are incomplete at this time since many of the marine casualties are still being investigated or are in various stages of completion.

- As of April 14, 1987, 2,694 marine accidents involving 4,201 vessels have been reported. As a result of these marine accidents, 63 fatalities and 87 injuries have been accounted for.

- In 1985, 87 percent of all U.S. vessel losses were uninspected vessels while fishing vessels accounted for 69 percent of the total number of losses. There were 5,694 vessels involved in 3,439 marine accidents resulting in 131 fatalities and 172 injuries during 1985. Also, in 1985, 130 fatalities were reported as a result of non-vessel-related accidents. Of this number, 41 (32 percent) resulted from falls overboard. The actual number of accidents and fatalities is expected to increase slightly for 1986 when the data is complete, but the rates are not expected to change significantly.

FIGURE 43.

WATERBORNE ACCIDENTS BY MONTH, 1985-1986



NOTE: More than one vessel may be involved in a marine accident.
Data for 1985 and 1986 are incomplete.

SOURCE: USCG, Marine Investigation Division, G-MMI.

FIGURE 45.

WATERBORNE FATALITIES RESULTING FROM VESSEL CASUALTIES*, 1985 - 1986

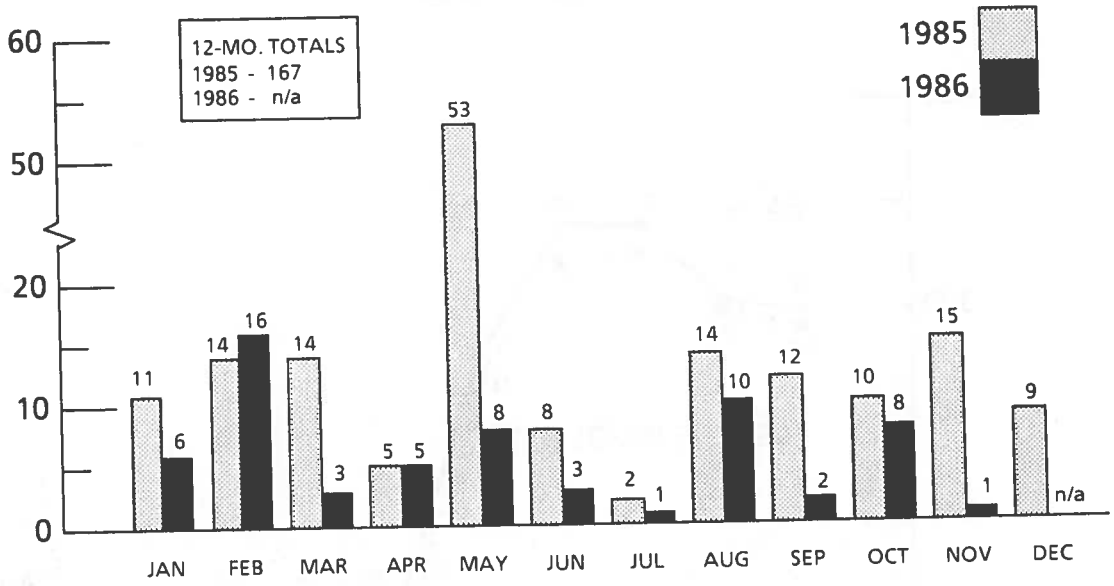
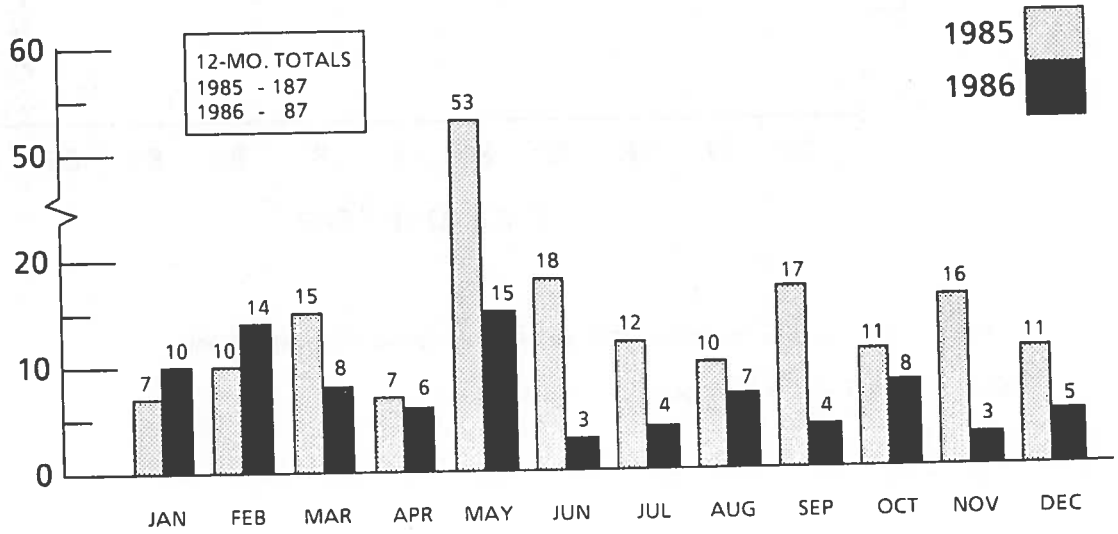


FIGURE 46.

WATERBORNE INJURIES RESULTING FROM VESSEL CASUALTIES*, 1985 - 1986

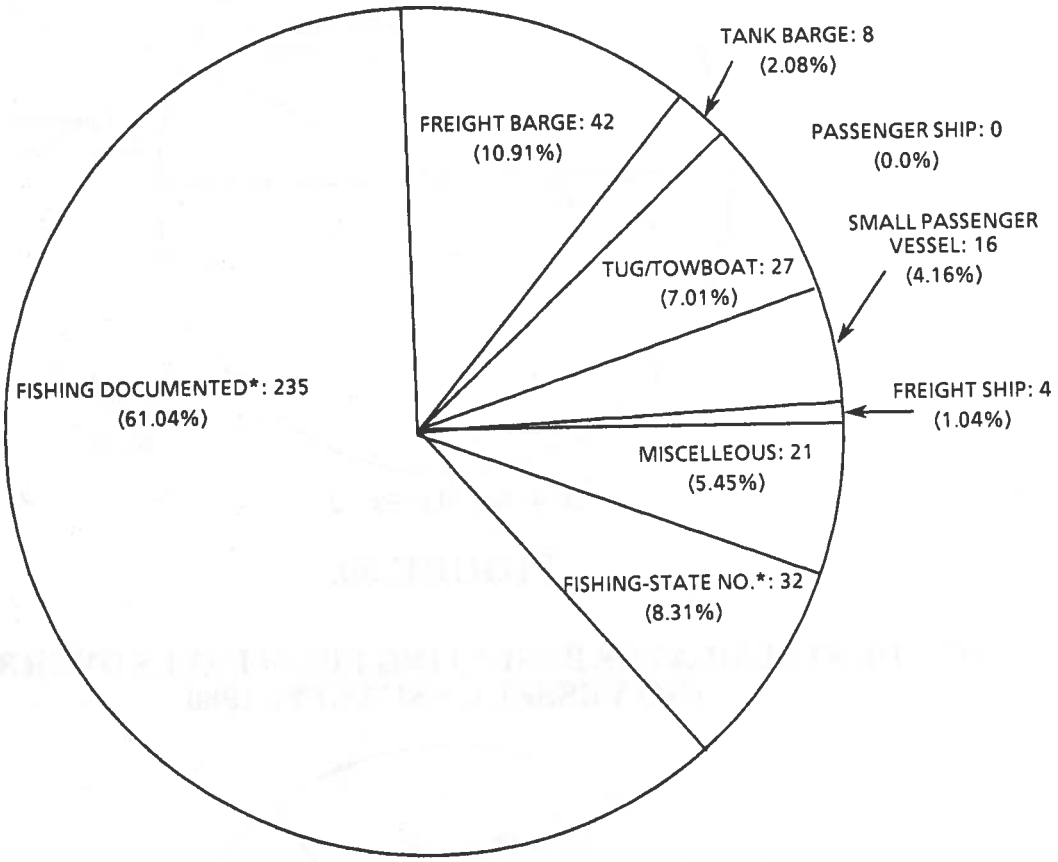


* Includes foreign vessels having casualties in U.S. navigable waters.
N/A: Not available.
NOTE: Data for 1985 and 1986 are incomplete.

SOURCE: USCG, Marine Investigation Division, G-MMI.

FIGURE 48.

U.S. VESSELS TOTALLY LOST IN 1985



TOTAL VESSELS LOST: 385

* All commercial fishing vessels over 5 net tons are documented by the Coast Guard; if less than 5 net tons, commercial fishing vessels are registered in the state.

NOTE: 1986 data will be provided as soon as available.

SOURCE: USCG, Marine Investigation Division, G-MMI. Data supplied as of 4/14/87.

Unsafe Speed, Lack of Lookout Cited in Fatal Gulf Collision

Unsafe speed and failure to maintain a proper lookout caused the fatal collision of the crewboat Alan McCall with an anchored charter fishing boat in the Gulf of Mexico March 9, 1985, the National Transportation Safety Board reported.

The Safety Board also held that Cameron Boat Rentals, Inc., operator of the crewboat, contributed to the accident by failing to require that its crewboat operators comply with navigation regulations -- "particularly the rule for safe speed in periods of limited visibility and maintaining a proper lookout".

The 110-foot-long Alan McCall was traveling at about 18 knots, bound for an offshore oil drilling rig, when it rammed the 50 foot charter fishing boat Gulf Queen some 55 miles southeast of Cameron, Louisiana. Visibility at mid-day was about a quarter of a mile in the fog.

Three of the 20 persons about the Gulf Queen were thrown into the water. Two were rescued; the third was never found. The impact of the collision tore off the stern of the wooden-hulled fishing vessel, which sank 2 1/2 hours later. The survivors were rescued by the crewboat, which received only minor damage in the collision.

The Alan McCall's operator told investigators that "running at full speed during periods of limited visibility is normal operating procedure and more or less the custom" of crewboats serving the offshore oil industry, the Safety Board reported.

Despite his speed, the operator had sufficient time to alter course and avoid the anchored Gulf Queen "if a proper lookout had been maintained," the Board said. It credited the Gulf Queen's operator with reducing the number of casualties by powering his vessel seconds before the collision.

The Safety Board incorporated five safety recommendations in its report. Their goals include increased company responsibility for crewboat employee adherence to navigation rules.

SOURCE: NTSB, News Digest, Vol.5, No. 1.

Failure to Find Leak Cited in Ship Explosion

An undetected leak of caustic soda into a void space of the U.S. Registered chemical tankship Puerto Rican lead to an explosion on October 31, 1985, that killed a seaman, the National Transportation Safety Board concluded.

The Puerto Rican had just departed the San Francisco Bay area bound for Gulf of Mexico ports when the explosion occurred. The force of the blast knocked the pilot and two crewmembers into the sea. One of the crewmembers is missing and presumed dead. The $35 million, 660-foot-long vessel broke in two a few days later in heavy seas, and its stern section sank.

The Board concluded that hydrogen gas formed after caustic soda in a cargo tank leaked into the void space where it reacted with zinc and the epoxy paint and galvanized piping. The Board could not determine what ignited the hydrogen gas in the void space.

According to the Board, the ship's master was alerted to the possibility of a leak nine days before the accident when a discrepancy was noted in the amount of caustic soda in one of the cargo tanks. The master sounded all areas surrounding the tank except the void space, which he believed had been

utilized, the Board found that the master was not trained in its use -- not a requirement on such small vessels.

The Safety Board said that in recent years, "naval architects have been able to class vessels over 200 feet in length, carrying over 100 passengers on overnight cruises on extended coastal voyages, as small passenger vessels (under 100 gross tons). Even larger vessels, carrying several hundred passengers and admeasuring less than 100 gross tons, are contemplated." The Pilgrim Belle measures 96 gross tons. The Coast Guard has begun a rulemaking proceeding to rewrite the design and construction standards that apply to small passenger vessels.

"USCG regulations do not adequately consider the navigation hazards of operating passenger vessels on routes other than rivers," the Board said. "Passenger vessels like the Pilgrim Belle, which operate off the New England coast, can unexpectedly encounter limited visibility conditions at any time of the year." The Board said that additional electronic navigational equipment, such as radar, loran, or a satellite navigation receiver, a gyrocompass and a fathometer should be required on small passenger vessels that operate offshore.

Among other recommendations to the Coast Guard were:

- Require all passenger vessels that have overnight accommodations for 50 or more passengers to meet the construction, licensing and manning requirements for a passenger vessel over 100 gross tons.
- Require primary lifesaving equipment (liferafts or lifeboats) that prevents immersion in the water when a vessel is abandoned.
- Require that all small passenger vessels with a cruising time of at least a week conduct drills to familiarize passengers with emergency procedures.
- Study the traditional location of life preservers in rooms or berthing areas with consideration given to moving them closer to emergency muster stations.
- Require that the stability letter provided the master include more useful information than is now required. The Board noted that the master of the Pilgrim Belle was not aware of the fact that had the storeroom flooded in addition to the flooding that occurred in the crew's quarters and steering gear compartment, the vessel would probably have capsized and sunk.

SOURCE: NTSB, News Digest, Vol. 5, No. 2.

NTSB Recommends Added Safety on Small, Sea-Going Vessels

The National Transportation Safety Board has called on the U.S. Coast Guard to require the wearing of life preservers by passengers of small sea-going vessels entering and leaving ports that are susceptible to high, breaking waves.

The NTSB also recommended that the Coast Guard conduct research into means to quickly dispense floatation devices from boats to persons in the water beyond range of hand-thrown devices.

The Safety Board made its latest recommendations in reporting on the near-capsizing February 8, 1986 of the charter passenger vessel, Merry Jane, some 50 mile north of San Francisco.

At the same time, the Safety Board reiterated recommendations -- dating to 1983 -- that the Coast Guard make safety briefings on the proper use of life preservers mandatory. It also urged that ocean-

RECREATIONAL BOATING

- During 1986, the number of recreational boating fatalities and the fatality rate per 100,000 estimated boats decreased when compared with 1985. The number of fatalities dropped from 1,116 in 1985 to 1,066 in 1986, which represents a 4.5 percent decrease. The fatality rate per 100,000 estimated boats decreased to a record low in 1986, from 6.9 during 1985 to 6.5 during 1986.

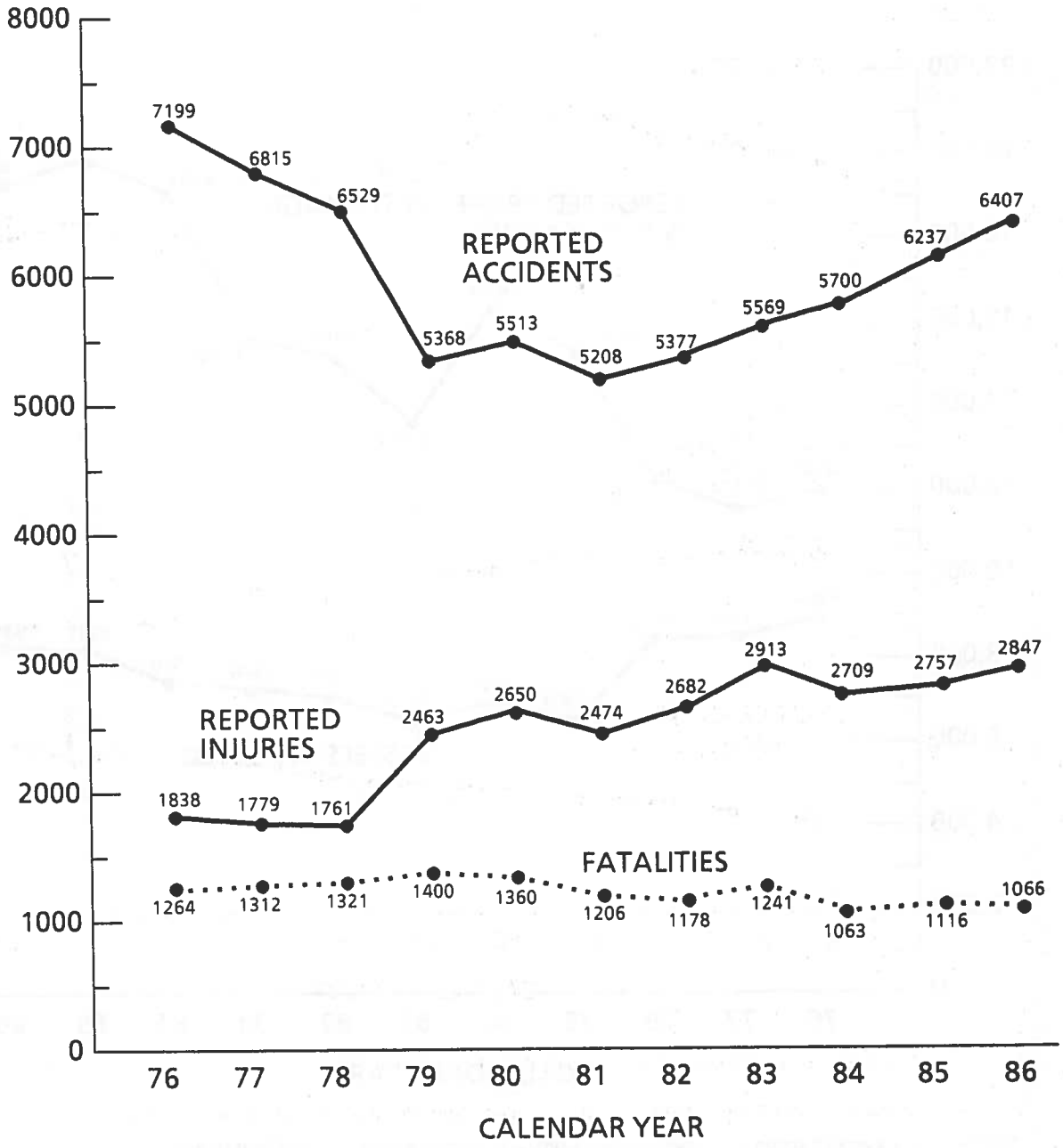
- The number of reported injuries rose 3.3 percent in 1986, from 2,757 in 1985 to 2,847 in 1986.

- Non-fatal, non-injury accidents reports in 1985 decreased 2.7 percent, resulting in the second highest amount of property damage ever reported ($19,358,900).

- In the fourth quarter of 1986, the number of recreational boating fatalities decreased slightly over the same period of 1985. There were 139 fatalities in 1985 and 137 in 1986. During the same periods, the recreational boating accidents and injuries both experienced a decrease. Reported accidents fell from 488 in the fourth quarter of 1985 to 487 in the corresponding period of 1986, while fourth quarter injuries declined from 176 in 1985 to 140 in 1986.

FIGURE 52.

RECREATIONAL BOATING FATALITIES, INJURIES, AND ACCIDENTS, 1976 - 1986



NOTE: Only a small fraction of property damages and non-fatal accidents are reported to the Coast Guard.

SOURCE: BAR File, USCG, Office of Boating, Public, and Consumer Affairs, G-BP-1.

FIGURE 54.

RECREATIONAL BOATING FATALITIES, 1985-1986

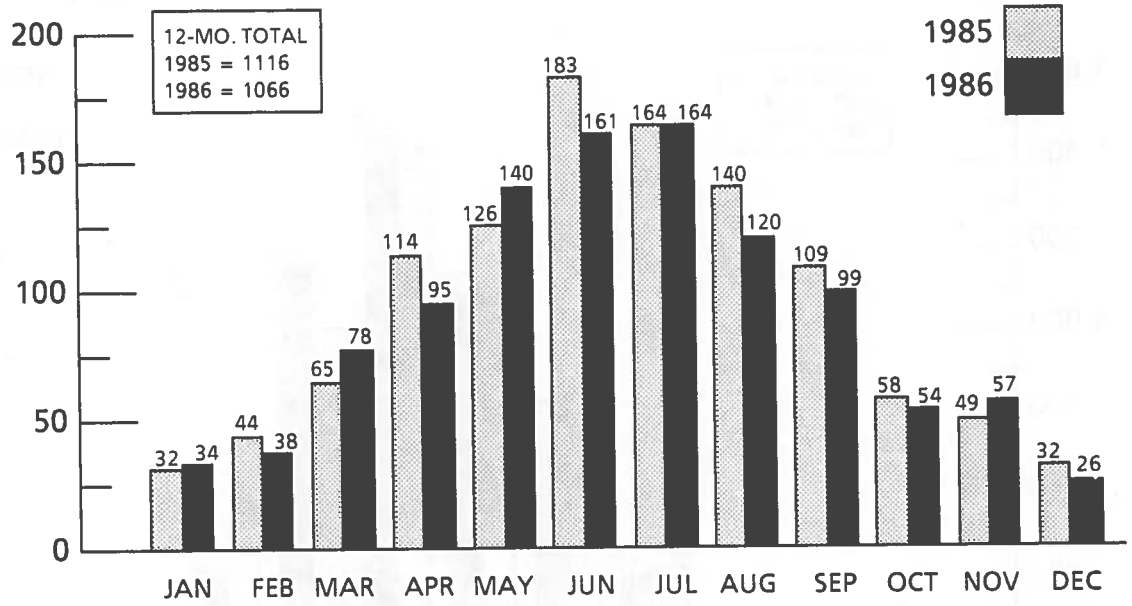
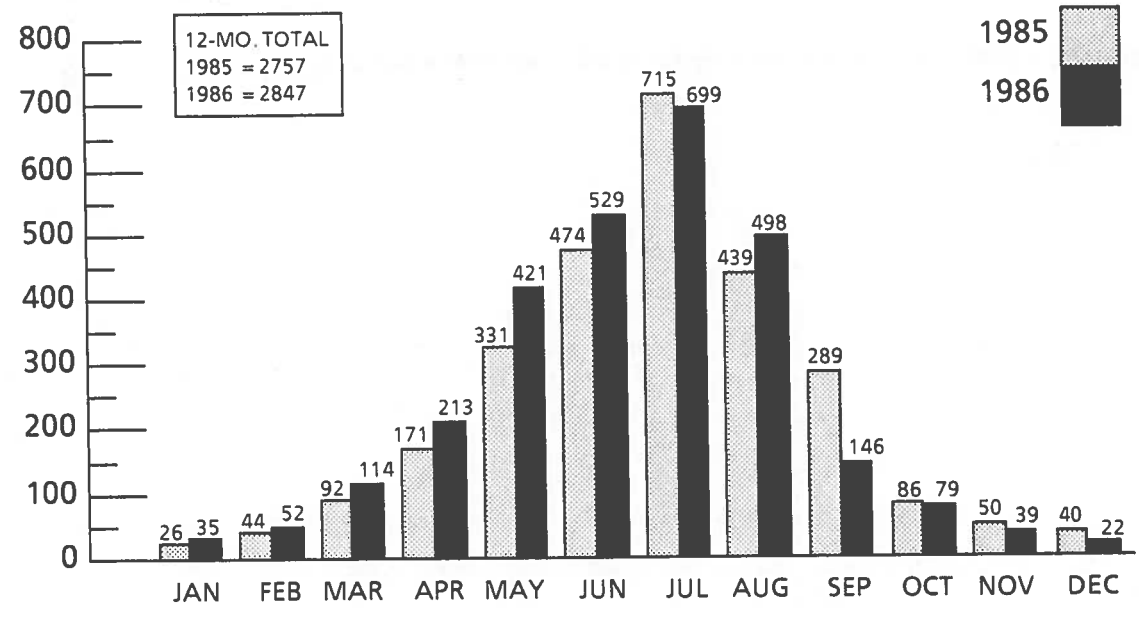


FIGURE 55.

RECREATIONAL BOATING INJURIES, 1985 - 1986



SOURCE: BAR File, USCG, Office of Boating, Public, and Consumer Affairs, G-BP-1.

MODAL SAFETY HAZARDS

The Danger at Dusk

Five people were partying on a pontoon boat about 50 yards from the riverbank when they heard the roar of an outboard. The lights of their boat were on, so at first they had no fear, but watched as the outboard approached. Noticing that the outboard was not displaying running lights, they tried to warn the other operator by yelling and waving their arms. However, the other operator had difficulty focusing his attention because he had been drinking alcohol. The boat hit one of the pontoons and the party boat had to limp to shore. Fortunately, no one was injured, but both boats were put out of commission. The operator is risking civil or criminal penalities for operating a vessel while intoxicated.

SOURCE: USCG, Office of Boating, Public, & Consumer Affairs, G-BP.

Older Boats

Three teenaged girls were on the river to travel to a state park for a picnic. All of a sudden the steering wheel came loose and the boat turned sharply, throwing two of them overboard. One of them was badly bruised when struck by the boat on the way over the side. The remaining teenager shut the motor off and was able to stop the boat before it circled to run over other. The boat was fifteen years old. Perhaps a periodic examination of the boat would have prevented this accidents. Outboard engines will cause a boat to turn sharply and circle when the steering is lost at more than slow speed.

SOURCE: USCG, Office of Boating, Public, & Consumer Affairs, G-BP.

Another Reason to Be Careful at Night

Two fishermen were returning from a long day on the ocean at a speed of 20 to 25 mph. It was dark, but they were very familiar with their home waters. However, there was a stretch along the unlit sea wall that could be shallow when the tide was low. In daylight they could judge their distance well enough to avoid the area. At night their perception fell drastically, so that on this night they ran aground. The sudden impact at high speed caused one of them to be injured along with severe damage to the hull of the boat. Although they blamed the unlit sea wall for the accident, they would have been operating more safely if they had slowed down, giving them more time for navigating and reacting.

SOURCE: USCG, Office of Boating, Public, & Consumer Affairs, G-BP.

SAFETY PROGRAM HIGHLIGHTS

Boating Safety Hotline

The Boating Safety Hotline processed more than six thousand calls in its first year of operation. The total number of calls has now passed ten thousand. The hotline is such a success that the Coast Guard decided to make it a regular part of its consumer services for recreational boaters. It is used to obtain information of boating safety regulations, volunteer U.S. Coast Guard Auxiliary services, recalls for a particular boat, or other safety topics. The hotline will now be more widely publicized

SOURCE: USCG, Office of Boating, Public, & Consumer Affairs, G-BC.

MATERIALS TRANSPORT

PIPELINES

- During the fourth quarter and twelve-months of 1986 liquid pipeline leaks/failures increased when compared with the same periods of 1985. There were 49 leaks/failures reported in the fourth quarter of 1985, 61 in the same period of 1986; while a total of 204 leaks/failures were reported in 1986 versus 183 in 1985.

- Fatalities resulting from incidents involving the transport of natural gas decreased from 11 during the fourth quarter of 1985 to seven during the fourth quarter of 1986. Liquid pipeline fatalities increased from zero in 1985 to one in 1986. The number of natural gas pipeline fatalities declined from 28 in 1985 to 23 in 1986. Liquid pipeline fatalities also dropped when 1986 and 1985 data are compared, from five in 1985 to three in 1986.

- Injuries resulting from gas pipeline incidents decreased in the fourth quarter of 1986 and for the entire year. During the fourth quarter of 1986, 21 injuries were reported compared with 30 during the same 1985 period, while there were 106 injuries in 1986 versus 121 in 1985. Liquid pipeline injuries experienced an increase in the fourth quarter of 1986 over 1985. There were zero injuries in 1986 compared to two in 1985. When total 1985 and 1986 statistics are compared, liquid pipeline injuries increased from 17 to 32.

HAZARDOUS MATERIALS

- Hazardous materials fatalities increased both during the fourth quarter and for the entire year of 1986. Two fatalities were reported in the fourth quarter of 1985 and eight for the entire year. In 1986, there were three fatalities in the fourth quarter and 16 for the year.

- In the fourth quarter of 1986, the number of incidents involving the transport of hazardous materials declined when compared with the same period of 1985. There were 1,140 incidents reported in the fourth quarter of 1986 and 1,169 in the corresponding 1985 period. When the entire year 1986 is compared with 1985, hazardous materials incidents decreased from 6,014 in 1985 to 5,671 in 1986.

- Major injuries resulting from hazardous materials incidents rose from five in the fourth quarter of 1985 to eight in the fourth quarter of 1986 and minor injuries decreased from 58 to 46 in the same time periods. Both major and minor injuries increased in 1986 when compared to 1985. The year-end totals were: 56 major injuries in 1986 versus 19 in 1986 and 259 minor injuries in 1986 versus 234 in 1985.

TABLE 17.

PIPELINE FATALITIES FOR 1986 COMPARED WITH 1985

	JANUARY		FEBRUARY		MARCH	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
GAS PIPELINE*	2	0	3	8	0	1
LIQUID PIPELINE	0	0	0	0	0	0
TOTAL	2	0	3	8	0	1

	APRIL		MAY		JUNE	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
GAS PIPELINE*	6	1	0	1	0	1
LIQUID PIPELINE	1	0	0	0	0	0
TOTAL	7	1	0	1	0	1

	JULY		AUGUST		SEPTEMBER	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
GAS PIPELINE*	4	1	2	0	0	3
LIQUID PIPELINE	1	2	3	0	0	0
TOTAL	5	3	5	0	0	3

	OCTOBER		NOVEMBER		DECEMBER	
CLASSIFICATION	1985	1986	1985	1986	1985	1986
GAS PIPELINE*	0	1	3	1	8	5
LIQUID PIPELINE	0	1	0	0	0	0
TOTAL	0	2	3	1	8	5

	FOURTH QUARTER			12-MONTH TOTAL		
CLASSIFICATION	1985	1986	% Chg	1985	1986	% Chg
GAS PIPELINE*	11	7	-36.4	28	23	-17.9
LIQUID PIPELINE	0	1	[1]	5	3	-40.0
TOTAL	11	8	-27.3	33	26	-21.2

NOTE: 1986 data are preliminary. Data supplied as of 04/22/87.
[1] Not calculable.
* Includes preliminary notification of pipeline leaks via telephonic reports.

SOURCE: Liquid Pipeline: DOT F7000-1 Pipeline Carrier Accident Report.
Gas Pipeline: DOT F7100.1 and F7100.2.
RSPA, Hazardous Materials Information Systems, DPS-20.

FIGURE 61.

LIQUID PIPELINE FATALITIES, 1985-1986

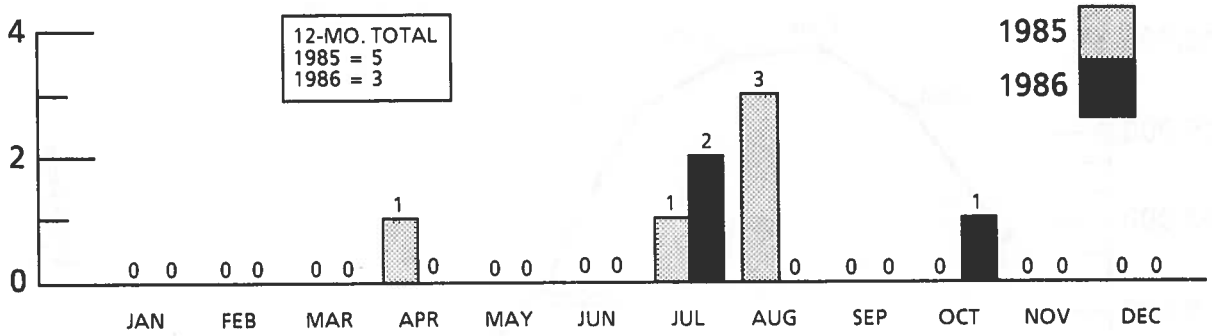


FIGURE 62.

LIQUID PIPELINE INJURIES, 1985-1986

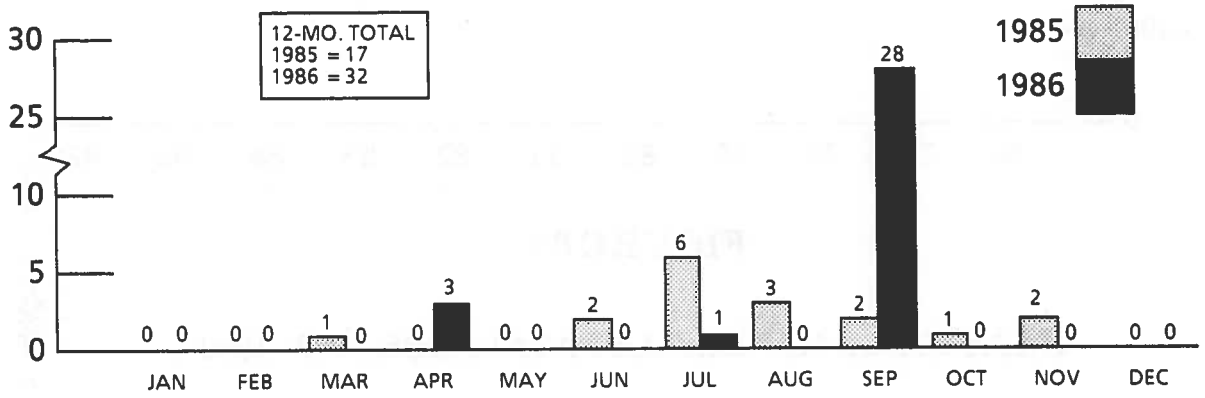
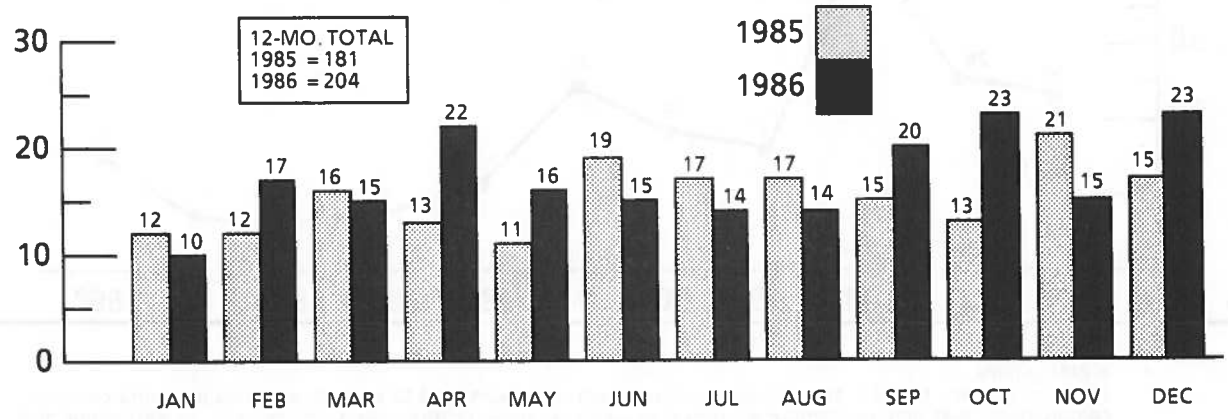


FIGURE 63.

LIQUID PIPELINE LEAKS/FAILURES, 1985-1986

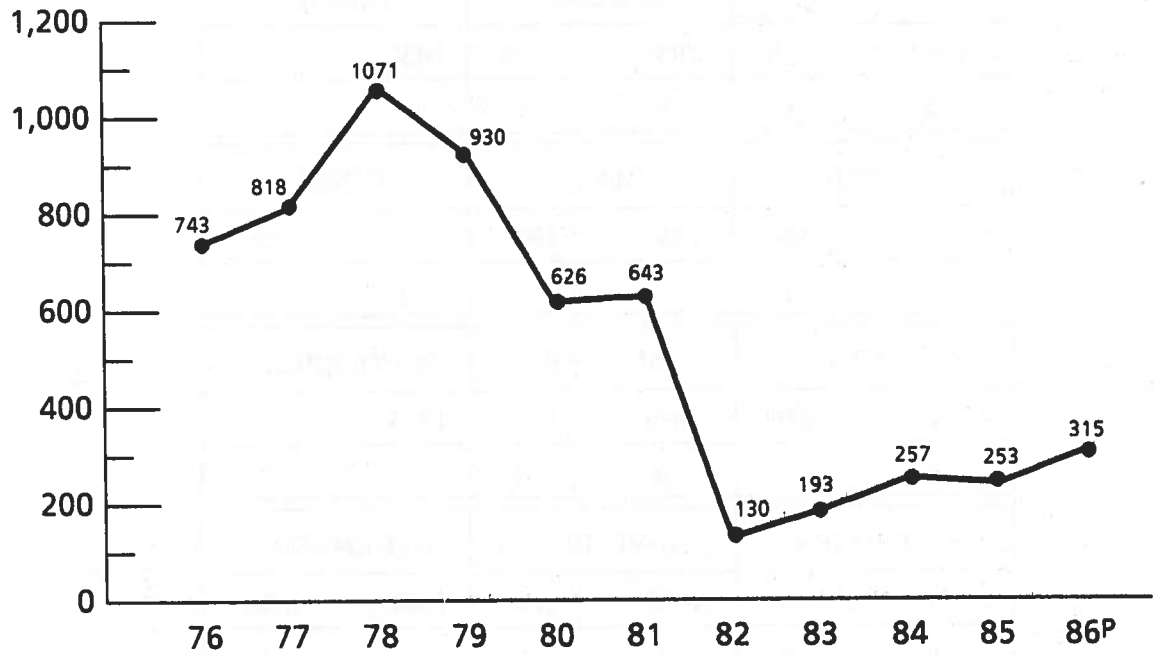


NOTE: 1986 data are preliminary.
Pipeline incidents are credited to the year in which they occurred, not the year in which the report was received.
Data supplied as of 04/22/87.

SOURCE: Liquid Pipeline: DOT F 7000.1.
RSPA, Hazardous Materials Information Systems, DPS-20.

FIGURE 66.

HAZARDOUS MATERIALS INJURIES+, 1976 - 1986*



P = Preliminary.
* Effective January 1, 1981, the reporting requirements were changed to exclude incidents involving consumer commodities, wet electric storage batteries, or paint, enamel, lacquer, stain, shellac, etc., in packaging of 5 gallons or smaller unless the incident results in death, injury or property damage over $50,000; the material is being transported by air or the material is classified as a hazardous waste.
\+ Includes major and minor injuries.
NOTE: Data supplied as of 03/07/87.
Hazardous Materials incidents are reported in the year in which they occurred.

SOURCE: RSPA, Hazardous Materials Information Systems, DMT-62.

FIGURE 68A.

HAZARDOUS MATERIALS MAJOR INJURIES*, 1985-1986

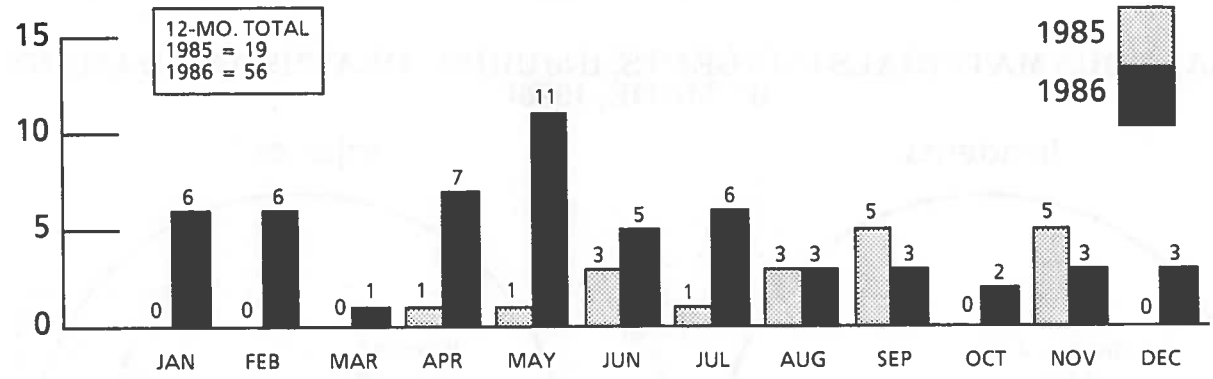


FIGURE 68B.

HAZARDOUS MATERIALS MINOR INJURIES*, 1985-1986

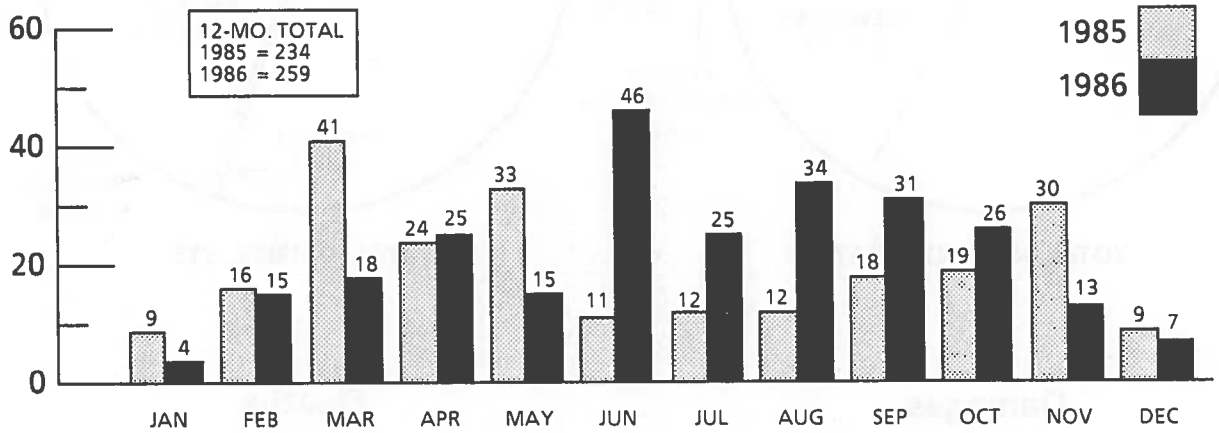
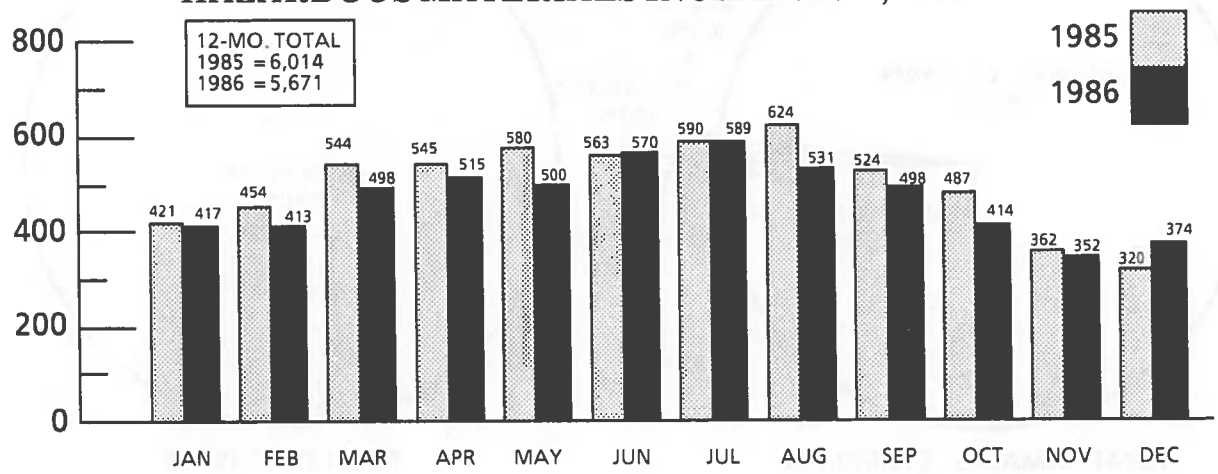


FIGURE 69.

HAZARDOUS MATERIALS INCIDENTS**, 1985-1986



* See Glossary for definition.

** Hazardous Materials Incidents are reported in the year in which they occurred.

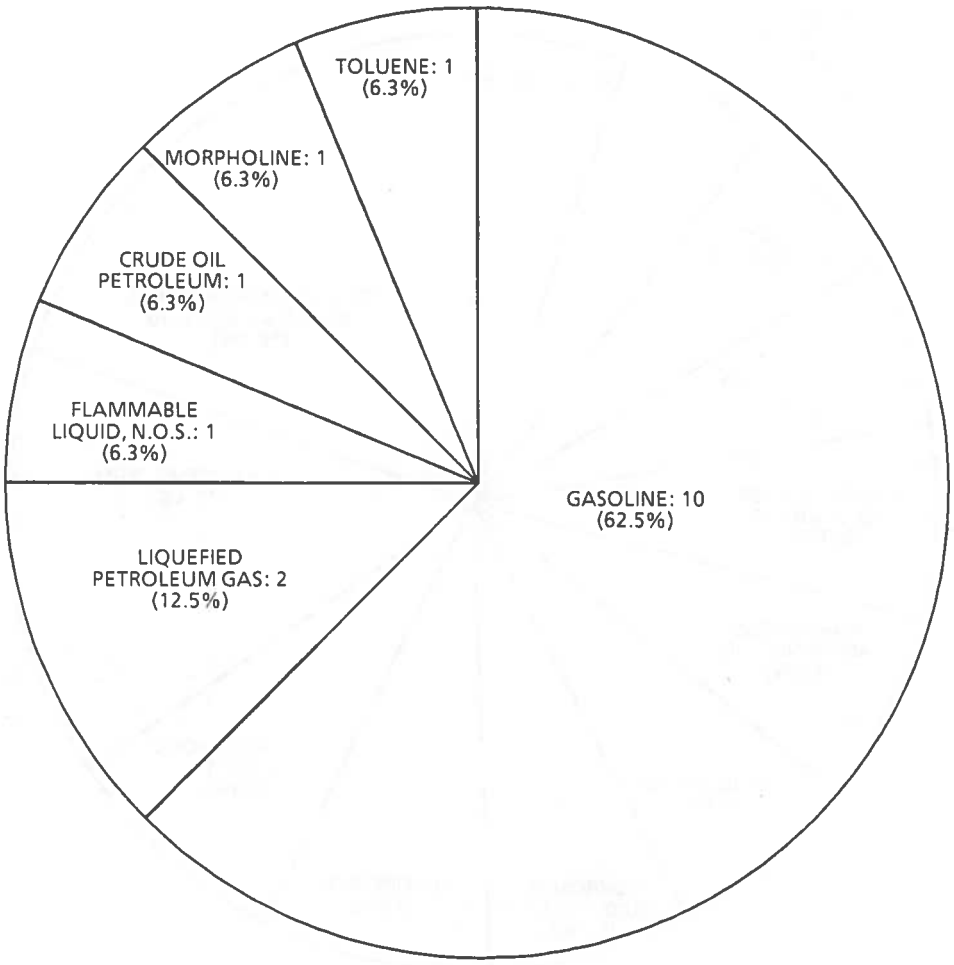
NOTE: 1986 data are preliminary.

SOURCE: RSPA, Hazardous Materials Information Systems, DMT-62.

Data supplied as of 03/07/87.

FIGURE 71A.

HAZARDOUS MATERIALS DEATHS BY TOP SIX COMMODITIES INVOLVED, 1986P



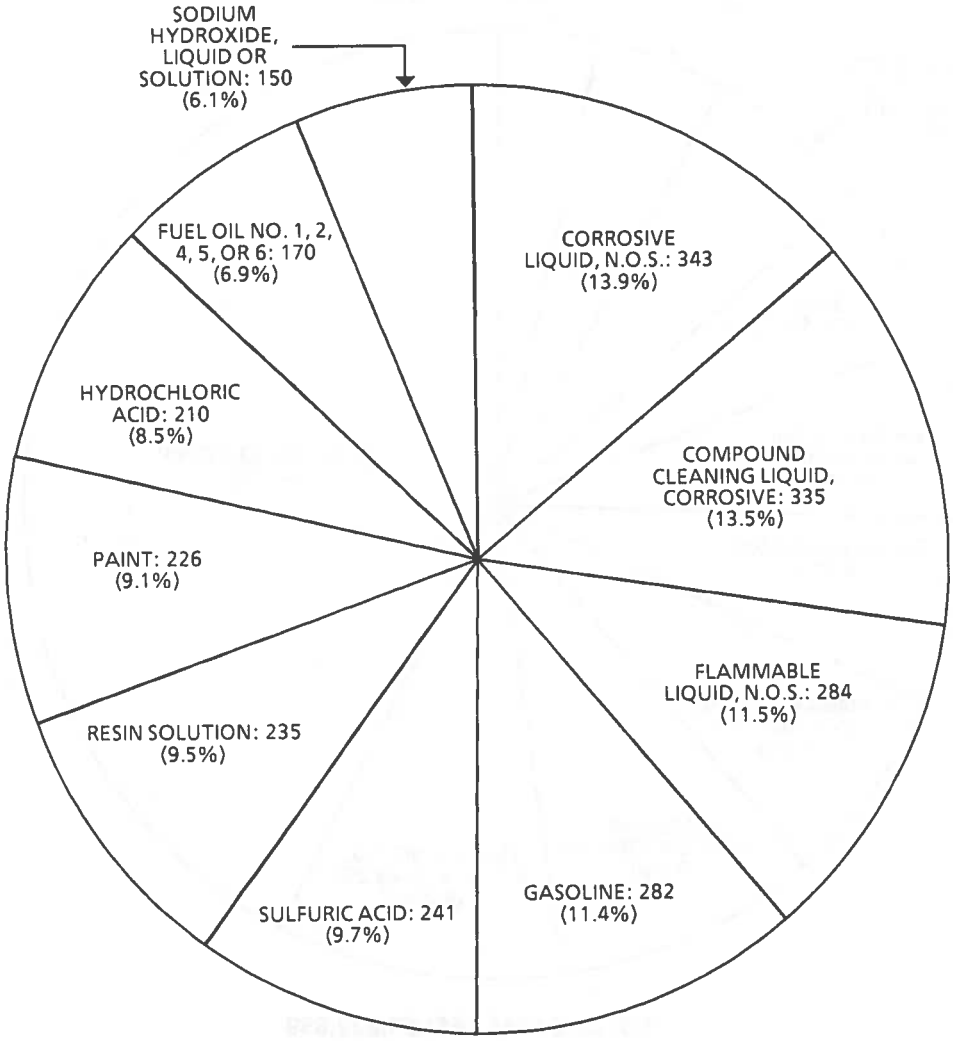
TOTAL DEATHS: 16

* Incidents do not add up to total since a single incident may involve more than one commodity.
P = Preliminary.
NOTE: N.O.S. = Not Otherwise Specified.
Data supplied as of 02/01/87.

SOURCE: RSPA, Hazardous Materials Information Systems, DMT-63.

FIGURE 71C.

HAZARDOUS MATERIALS INCIDENTS BY TOP TEN COMMODITIES INVOLVED, 1986P



TOTAL INCIDENTS: 2,476

* Incidents do not add up to total since a single incident may involve more than one commodity.
P = Preliminary.
NOTE: N.O.S. = Not Otherwise Specified.
Data supplied as of 02/01/87.

SOURCE: RSPA, Hazardous Materials Information Systems, DMT-63.

SAFETY PROGRAM HIGHLIGHTS

Hazardous Materials Spills Prompt NTSB for Better Information, Tighter Tank Repair Requirements

The National Transportation Safety Board (NTSB) has issued recommendations aimed at reducing the risk and impact of highway hazardous materials spills such as one on the Washington Beltway in 1985.

The Safety Board restated an earlier recommendation to the Department of Transportation (DOT) that it determine the adequacy of terminology used on shipping papers and whether more information is needed, such as technical and group names, so that emergency personnel know what they're dealing with in the event of a spill.

The Board also said that the Department of Defense (DOD), whose shipment was involved in the Beltway accident, should provide specific information on shipping papers on hazardous materials being carried and how the effects of those materials can be counteracted.

The DOT was also urged to establish standards for the training and qualifications of people involved in the repairing of hazardous cargo tanks. Standards should also be developed for the repairs themselves, and requirements should be instituted for technical examinations of those repairs, the Board said.

In the August 12, 1985 accident on Interstate Route 95 (the Capital Beltway) in Fairfax County, Virginia, a tank truck leaked some of its cargo of 5,000 gallons of corrosive hazardous waste being carried from the Norfolk Naval Shipyard. Examination of the cargo tank after the incident disclosed a 12-inch crack immediately adjacent to a corroded weld.

Because of the uncertainty of the contents of the spilling cargo -- the shipping paper identified the ingredients in the waste solution but did not provide the levels or actions to deal with potential hazards -- the Beltway was closed for nine hours and 600 people in the vicinity were evacuated. Laboratory analysis showed that the hazardous material was diluted enough to permit the reopening of the highway, once the remaining cargo had been transferred to another truck.

The Safety Board said that had the shipping paper contained more information on the contents, emergency response teams could have handled the situation much more quickly and local residents would not have had to be evacuated.

The NTSB also recommended that the DOD establish an effective 24-hour communication system to provide local emergency response personnel immediate access to authoritative information and expertise on the threats presented by explosive and other high-hazard DOT shipments involved in transportation accidents. This is a reiteration of a recommendation the NTSB made following its investigation of a 1984 accident involving the spillage of torpedoes in Denver.

MAJOR DOT SAFETY REGULATIONS

OCTOBER 1, 1986 - DECEMBER 31, 1986

The actions below are summarized from the final rules and regulations published in the Federal Register (FR) during the period covered by this report. These regulations amend the designated titles and sections of the Code of Federal Regulations (CFR).

U.S. COAST GUARD

33 CFR Parts 181 and 183 -- Boating Safety; Certification and Safe Powering Standards

This rule amends the Certification Regulations in Subpart B of Part 181 and the Safe Powering Standard in Subpart D of Part 183 of Title 33, Code of Federal Regulations. The purpose of these amendments is to give those boats, which can clearly operate safely with more horsepower than they currently rate under the Coast Guard Powering Standard, more reasonable maximum horsepower capacities. In order to allow greater flexibility in the manner in which the maximum horsepower capacity of these boats is determined, these amendments establish an optional performance test method as an alternative to the existing calculation method. An additional editorial change to Subpart A of Part 181 reflects changes in the applicability of the part. Effective date August 1, 1987. (51 FR 37572, October 23, 1986.)

FEDERAL AVIATION ADMINISTRATION

AIRWORTHINESS DIRECTIVES

14 CFR Part 39 -- DeHavilland Aircraft of Canada, Ltd., Model DHC-8 Series Airplanes

This action publishes in the **Federal Register** and makes effective as to all known persons an amendment adopting a new airworthiness directive (AD) which was previously made effective as to all known U.S. owners and operators of DeHavilland Model DHC-8 series airplanes by individual telegrams. This AD requires the isolation of the main landing gear actuation hydraulics by complying with a revised flight manual procedure for takeoff, landing, and while on the ground. Effective date October 20, 1986. (51 FR 34953, October 1, 1986.)

14 CFR Part 39 -- McDonnell Douglas Model DC-8 Series -10 Through -50, -61, -61F, -71 and -71F Airplanes, Equipped with Left and/or Right Wing Front Spar Lower Cap, Part Numbers 5597833-1 and -2

This amendment adopts a new airworthiness directive (AD) which requires repetitive inspections and repair, as necessary, of the left and right wing front spar lower caps, between stations Xfs = 515.000 and Xfs = 526.760 on certain McDonnell Douglas model DC-8 Series -10 through -50, -61, -61F, -71 and -71F airplanes. This amendment is prompted by report of fatigue cracking on the spar caps of two airplanes. This condition, if not corrected, could result in loss of structural integrity of the wing. Effective date October 20, 1986. (51 FR 35502, October 6, 1986.)

reports of T/R drive shaft aft coupling failures. This new AD makes installation of the failsafe device mandatory on both forward and aft flexible couplings and prescribes preflight and postflight checks to detect primary coupling failure. These actions are needed to prevent potential failure of the drive shaft system which could result in loss of T/R control. Effective date October 24, 1986. (51 FR 36543, October 14, 1986.)

14 CFR Part 39 -- Avco Lycoming T5508D Turboshaft Engines

This amendment adopts a new airworthiness directive (AD) which requires visual inspection for wear of the first stage turbine disk and shaft mating surfaces, fluorescent penetrant inspection for cracks of the first stage turbine disk, and replacement of the disk to shaft retaining bolts, on a one time basis for the first turbine rotor assembly installed in Avco Lycoming T5508D turboshaft engines. The AD is needed to prevent uncontained first stage turbine disk failure. Effective date October 10, 1986. (51 FR 36545, October 14, 1986.)

14 CFR Part 39 -- Boeing Model 737-300 Series Airplanes

This amendment adds a new airworthiness directive (AD) applicable to certain Boeing Model 737-300 airplanes, which requires inspection for proper clearance between the number two engine fuel feed tube and adjacent strut fairing fasteners, and adjustment or replacement, if necessary. This action if prompted by a report of a fuel lead on one airplane, resulting from chafing between the fuel tube and fasteners. This condition, if not corrected, could result in a strut fire. Effective date November 24, 1986. (51 FR 36797, October 16, 1986.)

14 CFR Part 39 -- Cessna Model 404 Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to all Cessna Model 404 airplanes requiring inspection for cracks and, if necessary, modification of the engine mount beams. Failure of a cracked engine mount beam in flight could cause airplane control problems and separation of the engine. This action prescribes those comprehensive inspections and modifications necessary to ensure structural integrity of the engine mount beams. Effective date October 21, 1986. (51 FR 37000, October 17, 1986.)

14 CFR Part 39 -- Boeing Model 767 Series Airplanes

The amendment adds a new airworthiness directive (AD) which requires replacement of the trolley roller and side track roller assembles the replacement of the cable pulleys in the counterbalance system, and rework of the aft roller side tracks on certain Boeing Model 767 entry/service doors. This action is prompted by reports of component failures and excessive operating loads which could prevent the door from opening when requires for emergency evacuation. Effective date November 26, 1986. (51 FR 37384, October 22, 1986.)

14 CFR Part 39 -- Cessna Turbocharged Model TU206 Series, TP206 Series, T207 Series and Model T210 Through T210N Airplanes

This amendment revises Airworthiness Directive (AD) 71-09-07 to make it applicable to Cessna Turbocharged Model TU206 Series, TP 206 Series and T207 Series and Model T210 through T210N airplanes. AD 71-09-07 was applicable to Cessna Turbocharged Model TU206, TP206, T207 and T210 series airplanes and was issued to require pressure testing of the complete exhaust manifold in the

14 CFR Part 39 -- Pratt & Whitney (PW) JT9D-7R4D, D1, E, and E1 Turbofan Engines

This amendment adopts a new airworthiness directive (AD) which requires the second stage high pressure turbine rotor (HPTR) four knife edge airseal to be replaced with or reworked to a HPTR three knife edge airseal on PW JT9D-7R4D, D1, E, and E1 turbofan engines. A modification to the turbine cooling air system which reduces the number of metering bolts in the first stage turbine rotor assembly and increases the airflow of the HPT cooling airduct is required. The AD is needed to prevent uncontained failure of the second stage HPTR airseal which could result in extensive engine and aircraft damage. Effective date December 8, 1986. (51 FR 40312, November 6, 1986.)

14 CFR Part 39 -- Boeing Model 747 Series Airplanes

This amendment amends an existing airworthiness directive (AD) which requires inspection of trailing edge flap tracks for cracking on certain Boeing Model 747 airplanes. This amendment incorporates a decrease in the inspection intervals from 1,000 landings to 300 landings for the fourth fastener from the forward end of the flap track. This action is prompted by eight recent reports of cracking adjacent to the fourth fastener hole prior to the current 1,000 landing inspection interval. This recent service experience has shown that the present 1,000 landing inspection interval. This recent service experience has shown that the present 1,000 landing inspection interval is inadequate. Cracking could lead to failure of the flap track and separation of the flap, which could result in partial loss of controllability of the airplane. Effective date December 8, 1986. (51 FR 40969, November 12, 1986.)

14 CFR Part 39 -- Boeing Model 747 Series Airplanes

This amendment supersedes an existing airworthiness directive (AD) that requires repetitive inspection for cracking, and repair as necessary, of body frame structure and skin in the nose (section 41) of the fuselage on certain Boeing Model 747 airplanes. This AD expands the area to be inspected. This action is prompted by a recent finding of numerous body frame structure cracks in other parts of section 41 which, is allowed to progress, could lead to sudden decompression of the fuselage. Effective date December 15, 1986. (51 FR 41473, November 17, 1986.)

14 CFR Part 39 -- Bell Helicopter Textron, Inc. (BHTI), Model 206A, 206B, and 206L Helicopters

This amendment adopts a new airworthiness directive (AD) that requires removal and replacement of either the tail rotor (T/R) yoke or crosshead on certain BHTI Model 206A, 206B, and 206L helicopters. A T/R yoke, which may interfere with the T/R pitch links, has been make available as a replacement part. The AD is prompted by 25 reports of interference between the T/R yoke and pitch links. This interference can damage the T/R pitch links, initiate fatigue cracks, and result in failure of the T/R pitch link and loss of directional control of the helicopter. The AD is needed to prevent failure of the pitch links which could result in loss of directional control and loss of the helicopter. Effective date December 15, 1986. (51 FR 41950, November 20, 1986.)

14 CFR Part 39 -- Fairchild Model SA26-T and SA26-AT Airplanes

This amendment revised Airworthiness Directive (AD) 81-26-05, applicable to Fairchild (previously Swearingen) Models SA26-T and SA26-AT airplanes. This revision clarifies the inspection procedures to prevent improper wing assembly and provides an alternate means of compliance by authorizing the installation of a wing spar strap modification with adjustment inspection intervals. Effective date December 29, 1986. (51 FR 42204, November 24, 1986.)

structural cruise, and never exceed speeds to preclude operation where airloads may be developed that could result in structural failure. In addition, airplanes certificated in utility category are restricted to operate in normal category only. Effective date December 3, 1986. (51 FR 43337, December 2, 1986.)

14 CFR Part 39 -- British Aerospace (BAe) Model 3101 (Jetstream) Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to certain BAe Model 3101 (Jetstream) airplanes. It requires modification of the electrical supply source for the lighting of the standby artificial horizon and altitude alert controller indicator (if fitted), from the main to the essential +28V busbar, which will ensure that the lighting supply to these indicators is maintained subsequent to a loss of the main busbar supply. The loss of lighting to essential cockpit instrumentation may result in the airplane deviating from an assigned altitude and encroaching into Instrument Flight Rule (IFR) assigned airspace, causing an unsafe condition. Effective date January 7, 1987. (51 FR 43338, December 2, 1986.)

14 CFR Part 39 -- British Aircraft Corporation Model 1-11, 200 and 400 Series Airplanes, Modified in Accordance With Air Cruisers Supplemental Type Certificate (STC) SA840EA

This action adopts a new airworthiness directive, applicable to certain British Aircraft Corporation (BAC) Model 1-11, 200 and 400 series airplanes, which requires a visual inspection and replacement, if necessary, of certain container latch release cables. This action is prompted by a report of a main cabin door jamming during an emergency evacuation when the pin in the escape slide failed to release. The cause of the failure was traced to a broken container latch release cable. This condition, if not corrected, could jeopardize the successful evacuation of an airplane in the event of an emergency. Effective date December 19, 1986. (51 FR 43340, December 2, 1986.)

14 CFR Part 30 -- Cessna 100 and 200 Series Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to Cessna 100 and 200 series airplanes. This AD requires modification of the airplanes by installing bolts, nuts and cotter pins on engine controls incorporating ball type rod ends in place of existing self locking nuts and undrilled bolts. Reports have been received of forced landings believed to have been caused by engine power interruption or fuel starvation due to the loss of the throttle and/or mixture control attachment. The AD modification will prevent this unsafe condition from occurring. Effective date January 7, 1987. (51 FR 43341, December 2, 1986.)

14 CFR Part 39 -- Allison Gas Turbine, General Motors Corporation, Allison Model 250-C28 and -C30 Series Engines

This action publishes in the **Federal Register** and make effective as to all persons an amendment adopting a new airworthiness directive (AD) which was previously made effective by individual letters as to all known U.S. owners and operators of certain Allison Model 250-C28 and -C30 series engines installed in, but not limited to, Bell Model 206L-1, Messerschmitt-Boelkow-Blohm GmbH BO 105 LS A-1, Sikorsky Model S-76A, Bell Model 206L-1 modified to incorporate the Allison 250-C30 engine, Bell Model 206L-3, and McDonnell Douglas Helicopter Company (Hughes) Model 369F and 369FF aircraft. The AD requires inspection of the gas generator turbine spline adapter locknut torque within five hours time-in-service after effective date of this AD, but not later than December 20, 1986, unless already accomplished. The AD is needed to prevent possible gas generator turbine overspeed failure/uncontained failure. Effective date December 3, 1986. (51 FR 43581, December 3, 1986.)

14 CFR Part 39 -- Cessna Aircraft Company Model 441 Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to Cessna Aircraft Company Model 441 airplanes, which requires the use of continuous ignition during flight in meteorological conditions shown to result in flameout until such condition no longer exist. The FAA has received numerous reports of single and dual-engine flameouts attributed to known or suspected ice ingestion on airplanes powered by Garrett TPE-331 engines. Three in-flight flameouts were reported on the Cessna Model 441 airplanes. The requirements of this AD will prevent significant power interruptions and spool down due to inadvertent flameout by providing a source of ignition to reestablish combustion quickly once the ingested ice has passed through the engine and a proper fuel/air mixture is reestablished. Effective date December 15, 1986. (51 FR 44042, December 8, 1986.)

14 CFR Part 39 -- Fairchild Aircraft Models SA 226-T, SA 226-T(B), SA 226-AT, SA 226TC Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to Fairchild Aircraft Corporation Models SA 226-T, SA 226-T(B), SAT 226-A, and SA 226TC airplanes, herein referred to as "SA 226 Series" airplanes, which requires the use of automatic or continuous ignition during flight in meteorological conditions shown to result in flameout until such conditions no longer exist. The FAA has received numerous reports of single and dual-engine flameouts attributed to known or suspected ice ingestion on airplanes powered by Garrett TPE-331 engines. Six in-flight and nine ground flameouts were reported on the Fairchild Model SA 226 Series airplanes. The requirements of this AD will prevent significant power interruptions and spool down due to inadvertent flameout by providing a source of ignition to reestablish combustions quickly once the ingested ice has passed through the engine and proper fuel/air mixture is reestablished. Effective date December 15, 1986. (51 FR 44044, December 8, 1986.)

14 CFR Part 39 -- Gulfstream Aerospace Corporation Models 690, 690A, 690B, 690C, 690D, 695, 695A, and 695B Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to Gulfstream Aerospace Corporation Models 690, 690A, 690B, 690C, 690D, 695, 695A, and 695B airplanes, herein referred to as "690 and 695" airplanes, which requires the use of continuous ignition during flight in meteorological conditions shown to result in flameout until such conditions no longer exist, or allows modification of the airplane with an FAA-approved automatic relite ignition system. The FAA has received numerous reports of single and dual-engine flameouts attributed to known or suspected ice ingestion on airplanes powered by Garrett TPE-331 engines. Four in-flight and two ground flameouts were reported on the Gulfstream Aerospace Models 690 and 695 airplanes. The requirements of this AD will prevent significant power interruptions and spool down due to inadvertent flameout by providing a source of ignition to reestablish combustions quickly once the ingested ice has passed through the engine and proper fuel/air mixture is reestablished. Effective date December 15, 1986. (51 FR 44046, December 8, 1986.)

14 CFR Part 39 -- McDonnell Douglas Helicopter Company (Hughes Helicopters, Inc.), Model 396A (OH-6A Military), D, E, F, FF, H, HE, HM, and HS Series Helicopters

This amendment amends an existing airworthiness directive (AD) which requires a one-time dye penetrant and tap test inspection as well as repetitive preflight checks of certain tail rotor blades for abrasion strip separation on McDonnell Douglas Helicopter Company Model 369A, D, E, H, HE, HM, and HS helicopters. The AD was prompted by reports of tail rotor blade abrasion strip separation which could result in loss of tail rotor control and subsequent loss of the helicopter. The FAA has

motor and failure of the existing circuit breaker to open. Effective data January 20, 10987. (51 FR 45304, December 18, 1986.)

14 CFR Part 39 -- deHavilland Models DHC-2 Mk.1 and DHC-2 Mk. III Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to deHavilland Models DHC-Mk. I (L-20, U-6 and U-6A) and DHC-2 Mk. III airplanes, which requires initial and repetitive dye penetrant inspections for cracks in the lugs of the lower attachment fork fitting of certain wing lift strut assemblies and replacement of these strut assemblies is cracked. The amendment is prompted by a report of a stress corrosion crack in a lug of a lower fork fitting on one wing lift strut during a routine inspection. If undetected, a cracked lug could progress to failure of the wing strut with resultant loss of the wing. The required inspections will detect cracks before they result in failure of the strut. Effective date January 21, 1987. (51 FR 45306, December 18, 1986.)

14 CFR Part 39 -- deHavilland DHC-8-101 and -102 Series Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to deHavilland Model DHC-8-101 and -102 airplanes, which requires inspection of the fore rudder upper and lower mounting brackets and spar web for cracks, modification of mounting brackets and repair of the spar web if necessary. This amendment is prompted by recent reports of cracked upper mounting brackets. This conditions, if not corrected, could result in failure of the main hinge portion of the fore rudder mounting bracket and/or loss of the structural integrity of the rear spar. Effective date January 5, 1987. (51 FR 45756, December 22, 1986.)

14 CFR Part 39 -- McDonnell Douglas Model DC -6, -6A, -6B, R6D,and C=118 (Military) Airplanes

This amendment amends an existing airworthiness directive (AD), applicable to McDonnell Douglas DC-6, -6A, -6B, R6D, and C-118 (Military) airplanes with currently requires inspection and repairs, if necessary, of wing lower fitting, stringers, and skin. This amendment defines a more accurate X-ray technique to assure proper coverage and sensitivity. This amendment also revises the inspection intervals, as a result of recent service experience. Effective date January 29, 1987, (51 FR 46602, December 24, 1986.)

14 CFR Part 39 -- Boeing Models 727 and 737 Series Airplanes

This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing Model 727 and 737 series airplanes that requires inspection and modification of the "B" system hydraulic pumps. This amendment requires either incorporation of an electrical ground fault protection system, which is an optional terminating action of the existing AD, or replacement of the hydraulic pumps with new or upgraded hydraulic pumps. This amendment is prompted by two recent reports of pump failures on Model 737 airplanes which caused fires that extensively damaged the airplanes. Effective date February 2, 1987. (51 FR 47209, December 31, 1986.)

14 CFR Part 39 -- Boeing Model 757 Series Airplanes

This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 757 series airplanes equipped with Pratt and Whitney Aircraft PW 2037 engines, which requires

intended to improve the incidence of correct headlamp aim. The headlamps are designated Type G and Type H. The retaining ring and mounting ring assembly used to hold the headlamp in place are eliminated. The new mounting system incorporates integral mounting/aiming tabs on the body of the headlamp and permits the headlamp to attach directly to the aiming screws, and thus the car body. Effective date November 12, 1986. (51 FR 40979, November 12, 1986.)

RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

49 CFR Part 192 -- Transportation of Natural and Other Gas by Pipeline; Period for Confirmation or Revision of Maximum Allowable Operating Pressure

This amendment clarifies a pipeline safety regulation regarding the period for confirmation or revision of a pipeline's maximum allowable operating pressure (MAOP). Under the present regulation, the MAOP of a pipeline must be confirmed or reduced within 18 months after a population increase near the pipeline results in a more restrictive class location. Some operators have misinterpreted this rule to preclude confirmation of the pre-existing MAOP at a date beyond the 18-month period if the initial action taken is to reduce the MAOP. The amendment makes it clear that confirmation by pressure testing may occur at any time after the 18-month period, if the initial compliance action is to reduce the MAOP under §192.611(b). Effective date October 31, 1986. (51 FR 34987, October 1, 1986.)

49 CFR Parts 172 and 173 -- Hazardous Materials; Uranium Hexaflouride

This final rule amends the Hazardous Materials Regulations to clearly specify certain safety control measures that must be employed before uranium hexaflouride (UF_6) is offered for transportation. RSPA believes this action is necessary to further increase safety in the transportation of UF_6 because of its potential chemical hazard in addition to its radiological hazard. Effective date January 1, 1987. (51 FR 41631, November 18, 1986.)

49 CFR Part 192 -- Pipeline Safety; Interval for Review and Calculation of Relief Device Capacity

This amendment permits the review and calculation of the capacity of certain relief devices to be made at intervals not exceeding 15 months, but at least once each calendar year. Under the present rule, the review and calculation must be made at intervals not exceeding one-year, a frequency which causes inconvenience in scheduling. Effective date December 18, 1986. (51 FR 41633, November 18, 1986.)

49 CFR Parts 171 and 172 -- Hazardous Substances

This final rule amends the Hazardous Materials Regulations (HMR) by incorporating into these regulations, as hazardous materials, substances designated as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); Pub. L. 96-510. This action is necessary to comply with the Superfund Amendments and Reauthorization Act of 1986. The intended effect of this action is to enable carriers of hazardous materials to specifically identify CERCLA hazardous substances and to make the required notification if a discharge occurs. Effective date January 1, 1987. (51 FR 42174, November 21, 1986.)

GLOSSARY

AVIATION

Air Carrier - beginning with 1975*, air carriers comprise three operational categories:

(1) Certificated Route Air Carrier - one of a class of air carriers holding a certificate of public convenience and necessity issued by the Civil Aeronautics Board to conduct scheduled services over specified routes and a limited amount of nonscheduled charter operations.

(2) Supplemental Air Carrier - one of a class of air carriers holding operating certificates issued by the Civil Aeronautics Board, authorizing them to perform passenger and cargo charter services supplementing the scheduled service of the Certificated Route Air Carriers.

(3) Commercial Operator (of large aircraft) - one of a class of air carriers operating on a private for-hire basis, as distinguished from a public or common air carrier, holding a commercial operator certificate, issued by the Administrator of the Federal Aviation Administration (pursuant to Part 45 of the Civil Air Regulations) authorizing it to operate (large) aircraft in air commerce for the transportation of goods or passengers for compensation or hire.

Air Taxi - any use of an aircraft by the holder of an air carrier operating certificate authorized by the certificate, or carries mail on contract (see Paragraph 298.3 of FAR 38).

Aircraft Accident - is an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, and in which any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or in which the aircraft receives substantial damage.

Aviation Mid-Air Near-Collision - is broken down into three categories:

(1) Critical - where collision avoidance was due to chance rather than any action taken by either pilot. Less than 100 feet of aircraft separation would be considered critical.

(2) Potential - where a collision would have resulted had no action been taken by either pilot. Closest proximity of less than 500 feet would usually be required in this case.

(3) No Hazard - where a report was made, but subsequent investigation determined that direction and altitude would have made a mid-air collision improbable regardless of evasive action taken.

Commuter Carrier - any operator who performs, pursuant to published schedule, at least five round trips per week between two or more points (see Paragraph 298.2 of FAR 38).

Fatal Injury - is any injury which results in death within seven days of the accident.

14 CFR 121 - all air carriers certificated for commercial operations with large aircraft.

*Prior to 1975, air carriers did not comprise commercial operators.

Hazardous Material - a substance or material which has been designated by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

Incident - refers to any unintentional release of hazardous material while in transit or storage.

Major/Minor Injury - (1) injuries requiring hospitalization; (2) injuries involving second or third degree burns; (3) injury-related lost time at work of one or more days such as would be caused by inhalation of strong, irritating vapors are classified as major injuries. All other reported injuries are considered minor.

HIGHWAY

Motor Vehicle Occupant - is a driver of or passenger in a motor vehicle other than a motorcycle or motorscooter. For reporting purposes, this category also includes riders of animals, occupants of animal-drawn vehicles, occupants of streetcars, unauthorized riders, etc.

Motor Vehicle Traffic Accident - is any motor vehicle accident that occurs on a trafficway or that occurs after the motor vehicle runs off the roadway but before events are stabilized.

Motor Vehicle Traffic Fatality - is a death resulting from motor vehicle accident injuries occurring on a trafficway within 30 days of the accident.

Motorcycle - is a two-wheeled motor vehicle having one or more riding saddles, and sometimes a third wheel for the support of a sidecar. The sidecar is considered a part of the motorcycle. "Motorcycle" includes motorized bicycle, scooter, or tricycle.

Pedalcycle - is a vehicle operated solely by pedals, and propelled by human power.

Includes: Bicycle (any size, with two wheels in tandem), tricycle, unicycle, and sidecar or trailer attached to any of these devices.

Excludes: These devices when towed by a motor vehicle, including hitching.

Pedestrian - is any person not in or upon a motor vehicle or other road vehicle.

Includes: Person afoot, sitting, lying or working upon a land way or place; person in or operating a pedestrian conveyance.

Excludes: Person boarding or alighting from another conveyance, except pedestrian conveyance; person jumping or falling from a motor vehicle in transport.

Trafficway - is the entire width between property lines, or other boundary lines, of every way or place, of which any part is open to the public for purposes of vehicular travel as a matter of right or custom.

PIPELINES

Gas Distribution - refers to pipelines transporting natural gas, flammable gas or gas which is toxic or corrosive in distribution operations. (Injury, fatality or accident definitions as shown under "Gas Transmission" below.)

1. Accidents (collisions, derailments or fires/explosions) occurring in yards and non-revenue service areas which do not involve revenue trains; accidents (collisions, derailments or fires/explosions) which involve only work trains and servicing equipment; and collisions between train cars resulting from coupling operations which do not involve passenger casualties are excluded.

RRT Casualty - is any casualty which satisfies the following threshold levels:

A. Employee Casualties

Employees who are on-duty and who are killed or sustain lost workdays resulting from reportable train accidents.

"Lost workday" means any full day or part of a day (consecutive or not) other than the day of the injury, that an employee is away from work because of the injury. The day of the reportable train accident is not to be reported as a lost workday even though the injured employee does not complete the work assignment that day.

B. Passenger and Other Casualties

Casualties involving passengers or other personnel (off-duty employees, contractors, etc.) which occur at or in exclusive approaches to or from faregates, or equivalent, or within the normal "paid" area, and which result in:

A. Fatalities, or

B. Personal injuries which require immediate medical treatment beyond first aid.

"Medical treatment" means treatment requiring the attention of a physician or registered professional medical personnel. "Medical treatment" as used here, does not refer to minor first aid treatment (one- time treatment), precautionary measures such as tetanus shots, or subsequent observation of minor scratches, cuts, bruises or splinters.

C. Exclusions

Assaults, attempted suicides, and suicides are excluded.

RAILROAD

Fatality -

(1) The death of any person from an injury within 365 days of the accident/incident;

(2) The death of a railroad employee from occupational illness within 365 days after the occupational illness was diagnosed by a physician.

(3) Occupational illness of a railroad employee, as diagnosed by a physician.

Injury -

(1) Injury to any person other than a railroad employee that requires medical treatment;

Fatality - refers to all deaths (other than deaths by natural causes) and missing persons resulting from an occurrence that involves a vessel or its equipment.

Injury - refers to all injuries meeting the criteria set forth in b. above, resulting from an occurrence that involves a vessel or its equipment.

WATERBORNE TRANSPORTATION

Casualty - casualties involving commercial vessels are required to be reported to the Coast Guard whenever the casualty results in the following:

a. Actual physical damage to property in excess of $25,000.

b. Material damage affecting the seaworthiness or efficiency of a vessel.

c. Stranding or grounding.

d. Loss of life.

e. Injury causing any persons to remain incapacitated for a period in excess of 72 hours, except injury to harbor workers not resulting in death and not resulting from vessel casualty or vessel equipment casualty.

Fatality - refers to all deaths and missing persons resulting from a vessel casualty.

Injury - this term refers to all personal injuries resulting from a vessel casualty.

Non-Vessel-Casualty-Related Death - is one which occurs on board a commercial vessel, but not as a result of a vessel casualty, such as collision, fire, or explosion.

Vessel-Casualty-Related Death - is one which occurs on board a commercial vessel as a result of a vessel casualty, such as collision, fire, or explosion.

Waterborne Transportation - is the transport of freight and/or people by commercial vessels under USCG jurisdiction.

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