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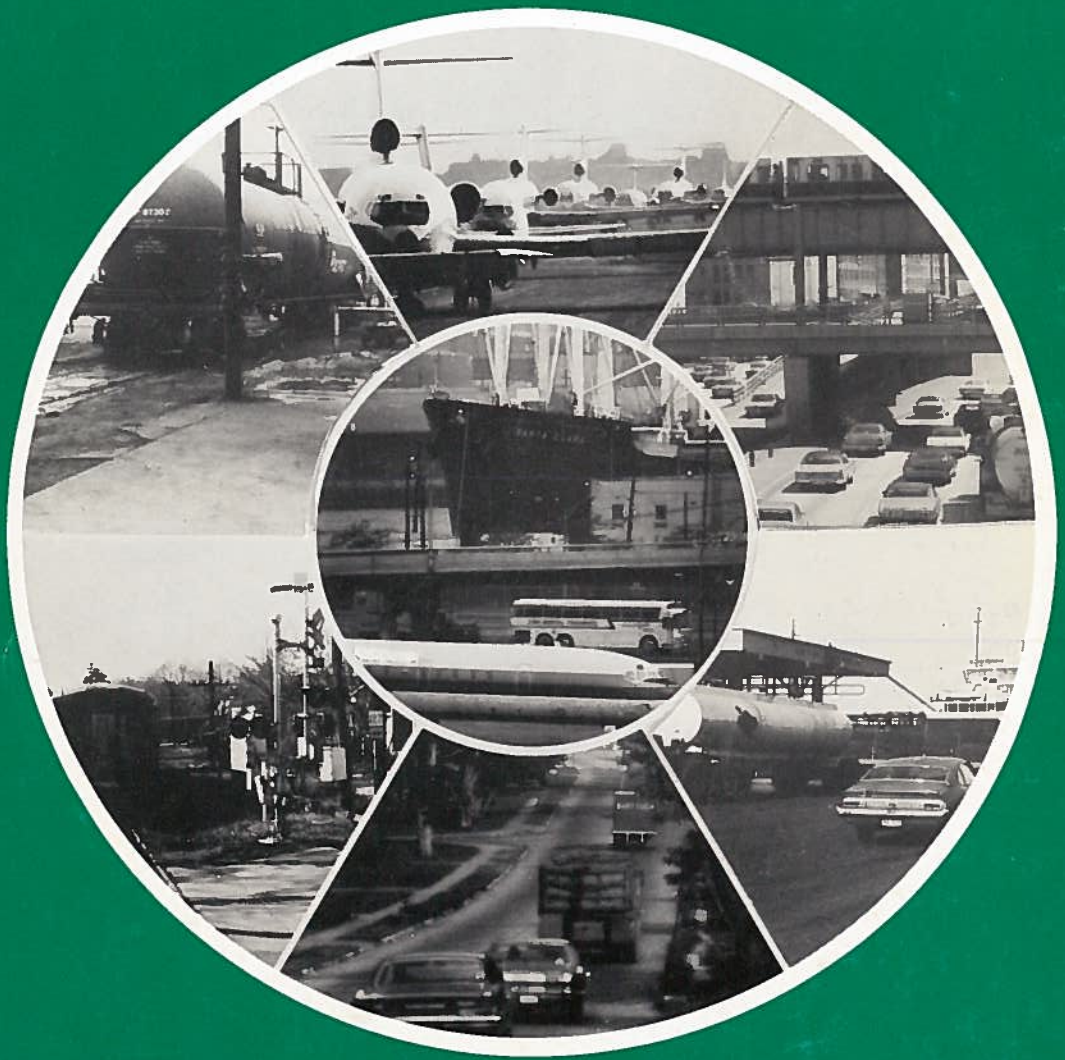
U.S. Department
of Transportation

**Research and
Special Programs
Administration**

Transportation Safety Information Report

1985 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 1985, as well as summary charts detailing modal safety trends from 1975 to 1985. It should be noted that 1985 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	426-6251	1404(TRPT)
Albert J. Marmo	G-BP-42	426-1070	4224(TRPT)
FEDERAL AVIATION ADMINISTRATION			
Charles J. Hoch	ASF-200	426-8256	333(10A)
FEDERAL HIGHWAY ADMINISTRATION			
Phyllis Young	HHS-22	426-2171	3409
FEDERAL RAILROAD ADMINISTRATION			
Bruce Fine	RRS-20	426-6144	8314
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
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URBAN MASS TRANSPORTATION ADMINISTRATION			
James O'Connor	URT-6	426-2896	6429
RESEARCH & SPECIAL PROGRAMS ADMINISTRATION			
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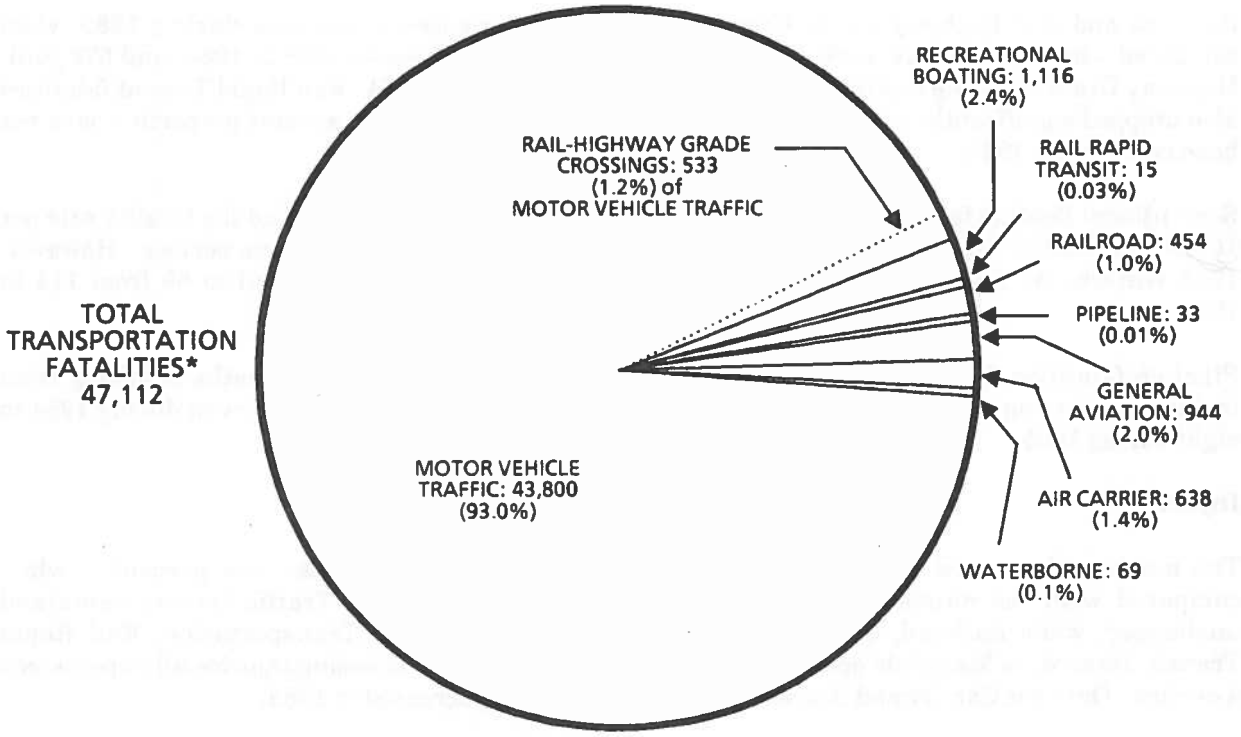
SUMMARY STATISTICS OF TRANSPORTATION SAFETY

- Total Transportation fatalities for 1985 declined to 47,112 from 47,487 in 1984, down nearly one percent.
- Motor Vehicle Traffic, Railroad, General Aviation, Pipeline, Waterborne Transportation, Rail Rapid Transit, and Rail-Highway Grade Crossings all experienced a decrease in fatalities during 1985. Modes reporting an increase in fatalities were Air Carrier, Recreational Boating, and Hazardous Materials operations.
- In 1985, injuries declined in Railroad, General Aviation, Pipeline, Waterborne Transportation, Rail Rapid Transit, Hazardous Materials operations, and Rail-Highway Grade Crossings. An increase in injuries was reported for Air Carrier and Recreational Boating, while Motor Vehicle Traffic injuries remained unchanged.
- The total number of Motor Vehicle Traffic accidents was not available for 1985. However, a decline in accidents was reported for Railroad, General Aviation, Pipeline, Waterborne Transportation, Rail Rapid Transit, and Rail-Highway Grade Crossings. Only Air Carrier, Recreational Boating, and Hazardous Materials operations experienced an increase in accidents.

CHART 1. TRANSPORTATION FATALITIES, 1985



* Includes 43 Rail-Highway Grade Crossing fatalities which are not reported in Railroad figure.

During 1985, accidents decreased in all modes for which there are data, except Air Carrier, Recreational Boating, and Hazardous Materials operations. There were 34,592 accidents reported for Railroad in 1985 compared with 38,910 in 1984. General Aviation accidents dropped to 2,748 in 1985 from 3,008 in 1984. Pipeline accidents decreased to 514 during 1985 from 1,153 in 1984, while Waterborne Transportation also declined to 2,259 in 1985 from 3,275 in 1984. Rail-Highway Grade Crossing accidents totaled 6,916 in 1985, five percent lower than the same period a year earlier.

In the three modes in which accidents increased during 1985, Air Carrier accidents rose from 185 in 1984 to 194 in 1985, a five percent increase; Recreational Boating accidents totaled 6,237 in 1985 compared with 5,700 in 1984, a nine percent increase; and Hazardous Materials operations accidents rose four percent -- from 5,776 during 1984 to 5,984 during 1985.

TABLE 2. (Continued)

CLASSIFICATION	SEPTEMBER 1984	SEPTEMBER 1985	SEPTEMBER % CHANGE	OCTOBER 1984	OCTOBER 1985	OCTOBER % CHANGE	NOVEMBER 1984	NOVEMBER 1985	NOVEMBER % CHANGE	DECEMBER 1984	DECEMBER 1985	DECEMBER % CHANGE
MOTOR VEHICLE TRAFFIC*	4,134	3,838	-7.2%	4,048	3,883	-4.1%	3,741	3,803	+1.7%	3,829	3,411	-10.9%
RAILROAD**	61	39	-36.1%	52	37	-28.8%	47	31	-34.0%	49	29	-40.8%
RAIL RAPID TRANSIT+	2	3	+50.0%	5	1	-80.0%	10	0	-100.0%	6	0	-100.0%
AIR CARRIER++	1	51	+5000.0%	3	9	+200.0%	0	12	[1]	20	258	+1190.0%
GENERAL AVIATION	102	75	-26.5%	107	89	-16.8%	86	95	+10.5%	122	82	-32.8%
WATERBORNE#	16	6	-62.5%	4	3	-25.0%	14	1	-92.9%	4	3	-25.0%
RECREATIONAL BOATING	80	109	+36.3%	61	58	-4.9%	44	49	+11.4%	29	32	+10.3%
PIPELINES, GAS & LIQUID	5	0	-100.0%	0	0	0.0%	7	3	-57.1%	3	8	+166.7%
TOTAL TRANSPORTATION	4,401	4,121	-6.4%	4,280	4,080	-4.7%	3,949	3,994	+1.1%	4,062	3,823	-5.9%
HAZARDOUS MATERIALS##	0	0	0.0%	0	0	0.0%	0	2	[1]	0	0	0.0%
GRADE CROSSING ONLY##	54	43	-20.4%	56	70	+25.0%	60	60	0.0%	63	63	0.0%

CLASSIFICATION	FOURTH QUARTER TOTAL 1984	FOURTH QUARTER TOTAL 1985	FOURTH QUARTER TOTAL % CHANGE	TWELVE-MONTH TOTAL 1984	TWELVE-MONTH TOTAL 1985	TWELVE-MONTH TOTAL % CHANGE
MOTOR VEHICLE TRAFFIC*	11,618	11,097	-4.5%	44,257	43,800	-1.0%
RAILROAD**	148	97	-34.5%	598	454	-24.1%
RAIL RAPID TRANSIT+	21	1	-95.2%	55	15	-72.7%
AIR CARRIER++	23	279	+1113.0%	102	638	+525.5%
GENERAL AVIATION	315	266	-15.6%	1,115	944	-15.3%
WATERBORNE#	22	7	-68.2%	113	69	-38.9%
RECREATIONAL BOATING	134	139	+3.7%	1,063	1,116	+5.0%
PIPELINES, GAS & LIQUID	10	11	+10.0%	35	33	-5.7%
TOTAL TRANSPORTATION	12,291	11,897	-3.2%	47,487	47,112	-0.8%
HAZARDOUS MATERIALS##	0	2	[1]	7	8	+14.3%
GRADE CROSSING ONLY##	179	193	+7.8%	649	576	-11.2%

NOTE: 1985 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. 1984 and 1985 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 149 Rail-Highway Grade Crossing fatalities in 1984 and 43 in 1985 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. An estimated 43,800 were killed in 1985, down one percent from the 44,257 highway fatalities of the year before.

- Despite the one percent traffic fatality decrease for 1985 as a whole, the 1984 trend continued from January through June. Deaths rose 2 percent compared to the same period a year before, with the increase concentrated in the April-June period. From July to December, however, there was almost a 5 percent downturn from the same months in 1984. The October through December 1985 period also experienced nearly a 5 percent drop from the same period of 1984, with the sharpest decline, 11 percent, occurring in December.

- Preliminary estimates of travel show an increase of 2.8 percent in 1985. The fatality rate per 100 million vehicle miles of travel was 2.48 in 1985, a decline of about 4 percent over the rate in 1984.

- The number of licensed drivers and the number of registered vehicles increased 2 percent from 1984 to 1985. However, the increases are much more dramatic when 1975 through 1985 are compared. The number of licensed drivers rose nearly 22 percent and the number of registered vehicles climbed more than 27 percent in the 11-year period.

- When occupant fatalities by type of motor vehicle are compared for 1984 and 1985, passenger cars recorded a 3 percent decrease while trucks rose 2 percent; motorcycles increased less than one percent, and other vehicle types climbed 57 percent. Total non-occupant fatalities fell 3 percent during the same period.

- Occupants of passenger cars accounted for more than half of the total highway fatalities in 1985. The largest proportion of these fatalities were attributed to subcompact and compact cars -- 39 and 28 percent, respectively.

TABLE 4.

HIGHWAY FATALITIES FOR 1985 COMPARED WITH 1984 AND 1976

JANUARY			FEBRUARY			MARCH			APRIL		
1976	1984	1985	1976	1984	1985	1976	1984	1985	1976	1984	1985
3,038	2,830	2,908	2,969	2,765*	2,592	3,197	3,304	3,212	3,569	3,249	3,521
% CHANGE			% CHANGE			% CHANGE			% CHANGE		
1976-85		1984-85	1976-85		1984-85	1976-85		1984-85	1976-85		1984-85
-4.3		+2.8	-12.7		-6.3	+0.5		-2.8	-1.3		+8.4

MAY			JUNE			JULY			AUGUST		
1976	1984	1985	1976	1984	1985	1976	1984	1985	1976	1984	1985
4,113	3,764	3,931	3,979	4,089	4,216	4,613	4,251	4,113	4,348	4,253	4,372
% CHANGE			% CHANGE			% CHANGE			% CHANGE		
1976-85		1984-85	1976-85		1984-85	1976-85		1984-85	1976-85		1984-85
-4.4		+4.4	+6.0		+3.1	-10.8		-3.2	+0.6		+2.8

SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
1976	1984	1985	1976	1984	1985	1976	1984	1985	1976	1984	1985
3,994	4,134	3,838	4,250	4,048	3,883	3,534	3,741	3,803	3,919	3,829	3,411
% CHANGE			% CHANGE			% CHANGE			% CHANGE		
1976-85		1984-85	1976-85		1984-85	1976-85		1984-85	1976-85		1984-85
-3.9		-7.2	-8.6		-4.1	+7.6		+1.7	-13.0		-10.9

FOURTH QUARTER			12-MONTH TOTAL		
1976	1984	1985	1976	1984	1985
11,703	11,618	11,097	45,523	44,257	43,800
% CHANGE			% CHANGE		
1976-85		1984-85	1976-85		1984-85
-5.2		-4.5	-3.8		-1.0

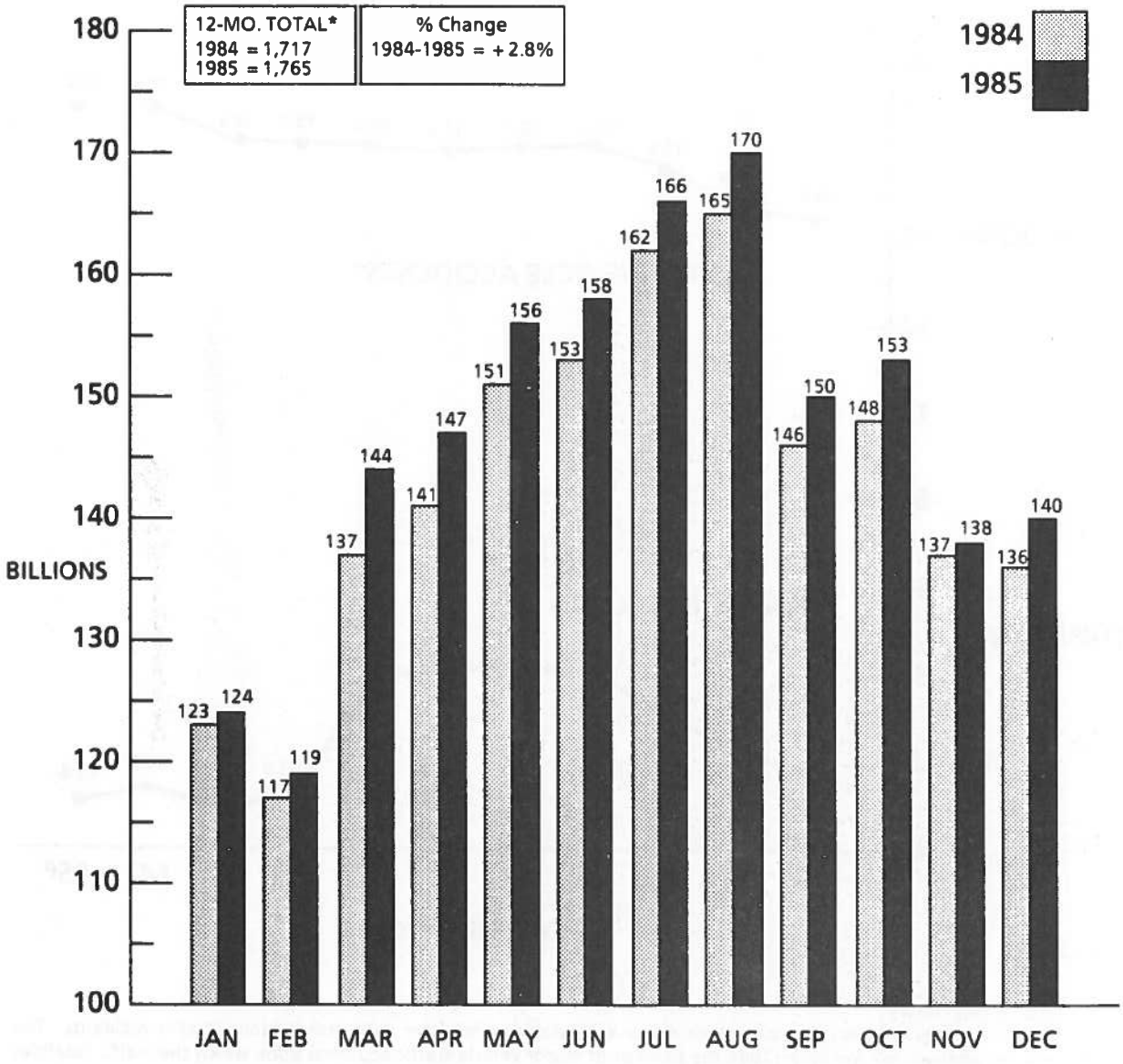
* 1984 is a leap year which should increase the February count by about 3 percent.

NOTE: Figures are based on 30-day fatality definition (see Glossary).
1985 Data are preliminary.

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

CHART 5.

MOTOR VEHICLE MILES OF TRAVEL, 1984 - 1985P

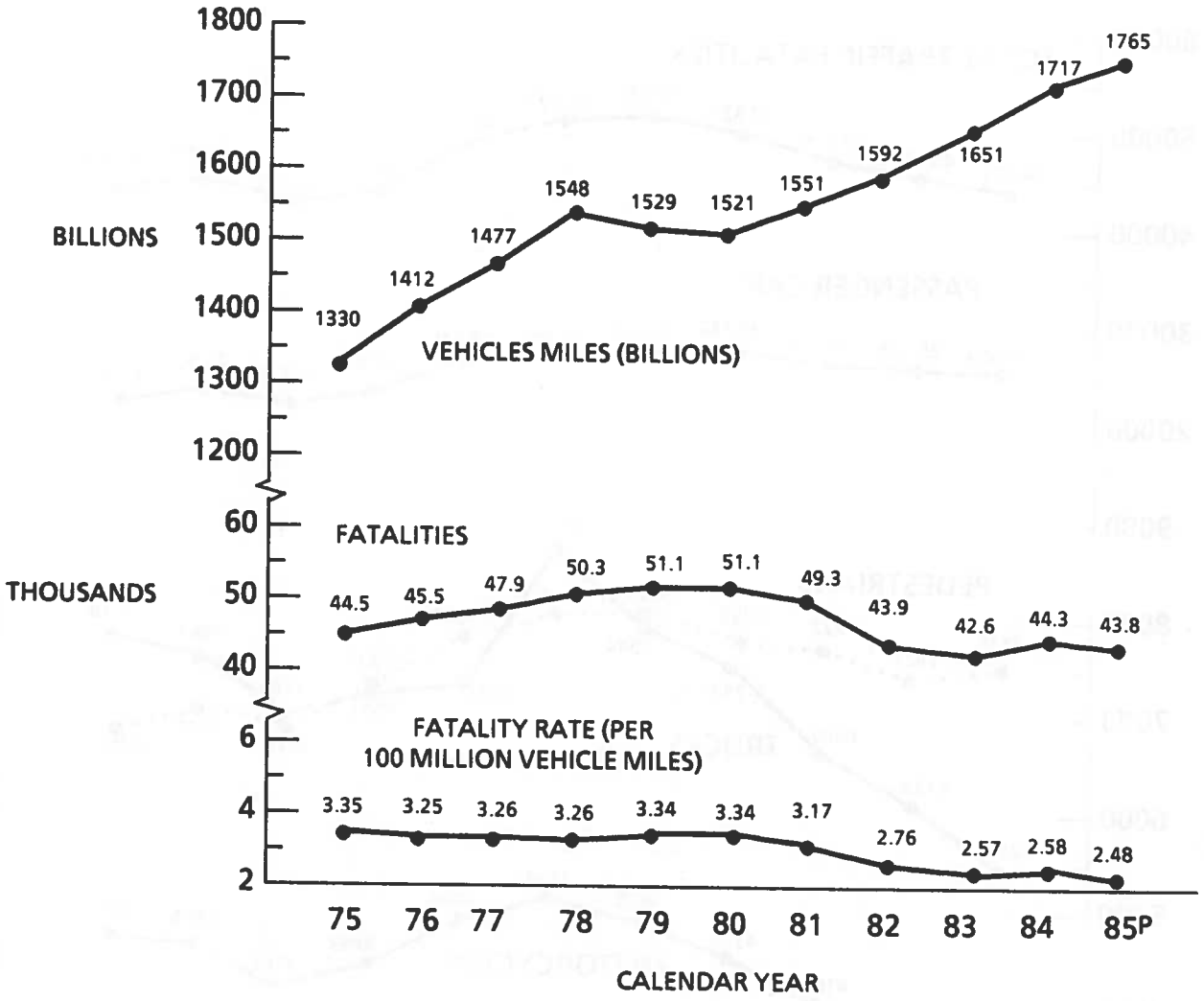


P = Preliminary.
* Sum of months does not equal total due to rounding.

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

CHART 7.

MOTOR VEHICLE TRAFFIC FATALITY RATES 1975 - 1985



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, 1975, 1980, 1984-1985

	1975	1980	1984	1985*	Average Annual % Change 1975-85	% Change 1984-85
Under 55 MPH						
0-25 MPH	2,617	2,865	2,309	2,308	-1.14	-0.04
26-35 MPH	6,099	8,527	7,917	7,806	+2.27	-1.40
36-45 MPH	4,276	6,256	6,660	6,707	+4.18	+0.71
46-54 MPH	2,241	2,431	2,053	2,034	-0.88	-0.93
Total Under 55	15,233	20,079	18,939	18,855	+1.96	-0.44
55 MPH	16,093	20,352	19,369	19,081	+1.56	-1.49
Unknown	7,831	4,853	1,314	1,244	-15.40	-5.33
Total	39,157	45,284	39,622	39,180	+0.01	-1.12

* Preliminary.

SOURCE: NHTSA, FARS.

TABLE 7.

MOTOR CARRIER* FATALITIES, ACCIDENTS, AND INJURIES, BY TYPE OF CARRIER, 1976-1984

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

* Includes only those motor carriers operating in interstate or foreign commerce.
N.A. = Not Available.

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

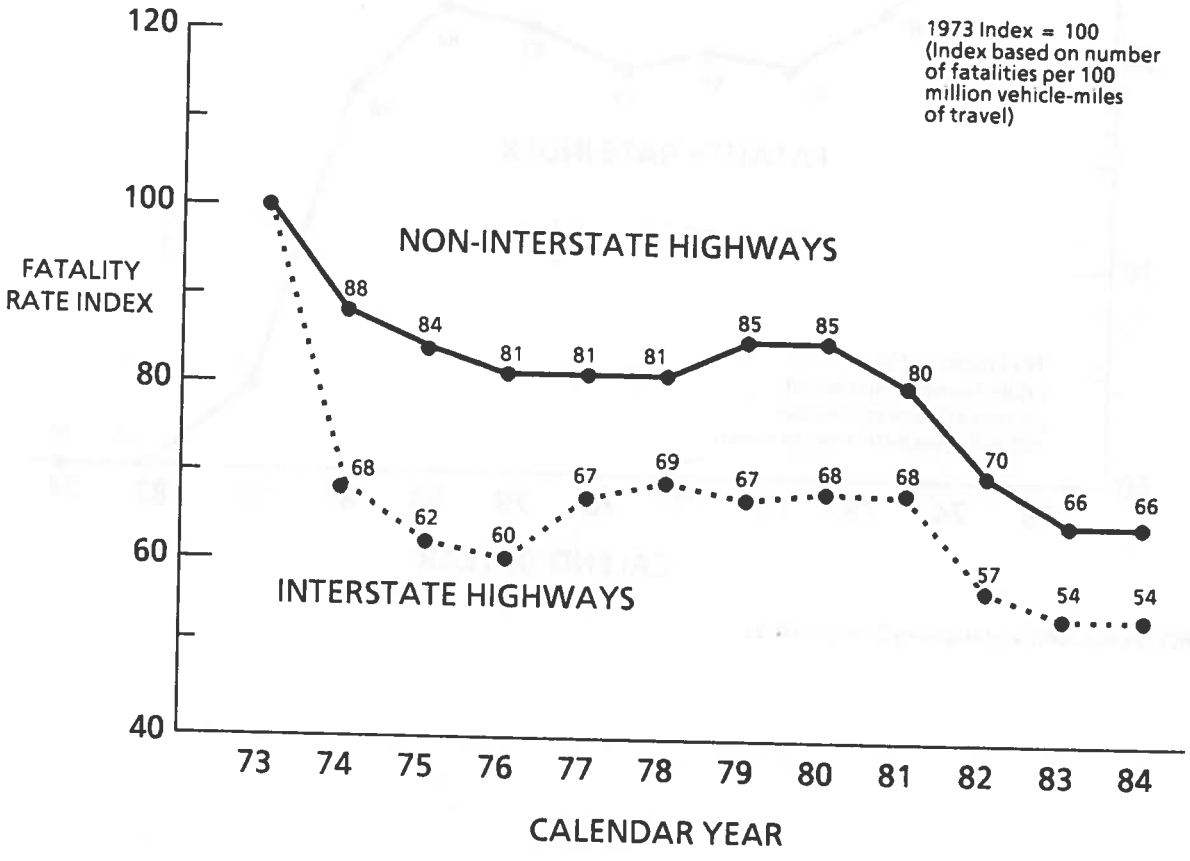
Fatality and Injury Rate Trends

The rates shown in Figures 1 and 2 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 1983. There was a one-year drop of about 18 percent from 1981 to 1982. In 1983 the fatality rate index declined further, by 6 percent, and remained at that level in 1984. The injury rate index reflects a similar downward pattern through 1983, with a 2 percent rise in 1984 (see Figure 2).

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 1 shows the fatality rate has dropped much more sharply on the Interstate highways than on the non-Interstate roads since 1973.

FIGURE 1.

FATALITY RATE TRENDS, 1973 - 1984



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

MODAL SAFETY HAZARDS

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 22,520 (preliminary estimate) 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 five 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. A uniform national minimum drinking age will eliminate the "blood borders" which afford teenagers the opportunity to drink and drive by crossing state lines to take advantage of a lower drinking age. As of March 15, 1986, 38 states required 21 as the minimum age for drinking.

SOURCE: NHTSA, NCSA, NRD-33.

Occupant Protection Regulations

Federal Motor Vehicle Safety Standard No. 208 requires automatic crash protection in passenger cars on a phased-in schedule beginning with the 1987 model 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. As many as half of all traffic fatalities and serious injuries could be prevented if everyone used safety belts whenever they traveled in cars. As of March 15, 1986, 19 states had passed laws requiring drivers and front seat passengers to buckle up.

SOURCE: NHTSA, NCSA, NRD-33.

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 last six months of 1985 about 56 percent of infants and toddlers observed in cars were using child safety seats, an increase of about seven 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. Another step taken in 1985 to further protect child passengers makes it easier for adults traveling with small children to use the same child safety seat both in cars and on airplane flights. Under a new FAA policy, child seats manufactured after January 1, 1981, which conform to NHTSA standards may be used on aircraft. Seats manufactured after February 25, 1985, for use in both motor vehicles and aircraft, will carry a certification label. (A ticket must be purchased for a child who is using a safety seat on an airplane.)

SOURCE: NHTSA, NCSA, NRD-33.

In addition to its grade-crossing monitoring program, the Board recommended to state directors of pupil transportation that they encourage local school officials to discuss with driver applicants "the physical and mental demands placed upon schoolbus drivers."

SOURCE: NTSB News Digest, Vol. 4, No, 3.

Driver Failure to Heed Signs and Properly Control Vehicle Caused Church Bus Accident

A church bus accelerated out of control while descending a long, steep grade on a California state highway, causing the death of two persons and injuries to 39 others, because the driver failed to respond to signs warning of the grade, the National Tranpsortation Safety Board has concluded.

As part of its probable cause determination, the Safety Board said the driver's failure to respond to the warning signs was coupled with a failure to use the vehicle's transmission and service brakes properly to control his vehicle's speed while descending the long steep grade.

The Board noted, but did not find causal, that church officials failed to advise the busdriver of a known road closure because of an earlier rock slide and to arrange a suitable alternate route that did not involve such steep terrain.

The bus left State Route 155 when it failed to negotiate a curve and rolled down a steep embankment near Wofford Heights, California, last July 7, 1985.

A postaccident inspection of the bus revealed that two of four service brakes were improperly adjusted, thereby reducing overall braking efficiency. In a downhill runaway vehicle situation even service brakes that are properly adjusted are overworked and become overheated and ultimately lose effectiveness not only from overheating but also from brake drum expansion. "In this accident, the already limited service brakes became less effective more quickly as the bus gained speed on the long descent and finally reached a point where they could no longer control the vehicle's speed."

The report observed that the Board has investigated at least ten accidents in the past decade involving unregulated, private activity buses not engaged in "for hire" operations. Seven of the ten accidents involved church buses and poor mechanical condition of such buses has been a recurring factor. In five of the ten accidents the mechanical conditions were a causal factor.

SOURCE: NTSB News Digest, Vol. 4, No. 3.

SAFETY PROGRAM HIGHLIGHTS

Alcohol Safety Programs

In 1985, NHTSA continued and strengthened its alcohol countermeasures programs with general deterrence emerging as the leading strategy. The following measures were undertaken to prevent drinking and driving:

- Thirteen states received Alcohol Traffic Safety Incentive Grants (Section 408). These basic and supplemental awards are intended to act as a catalyst to help states expand their efforts over and above the basic support supplied by usual funding. These grants and NHTSA's programs are designed to be mutually reinforcing and to encourage state/local community programs to achieve self-sufficiency.

information. Consumer reports on details of potential safety defects provide data that are valuable to agency defects investigations.

SOURCE: NHTSA, NCSA, NRD-33.

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, NCSA, NRD-33.

Hazard Elimination and Rail-Highway Crossing Programs

The Surface Transportation Assistance Act of 1982 authorized funds for the Hazard Elimination Program and the Rail-Highway Crossing Program for an additional four years through FY 1986. It also made funds for the Hazard Elimination Program available for expenditure on any public road off the Federal-aid system

In FY 1985, there were 1,029 Hazard Elimination and 1,525 Rail-Highway Crossing projects initiated. A total of $339.1 million in Federal funds was obligated for these two programs during the year. This is approximately 30 percent less than was obligated during the previous year. These projects are expected to make a substantial contribution toward reducing highway fatalities and injuries.

SOURCE: FHWA, Performance Evaluation Branch, HHS-22

RAILROAD

- The year 1985 saw railroad accidents and the accident rate per million train miles drop to an 11-year low. Railroad accidents involving trains only declined 57 percent since 1975, and the accident rate per million train miles dropped 44 percent in the 11-year period. When 1985 is compared with 1984, train accidents decreased 12 percent -- from 3,900 in 1984 to 3,426 in 1985.

- The total number of railroad and grade crossing fatalities declined from 1,247 in 1984 to 1,030 in 1985, representing a 17 percent improvement. Of the total number of fatalities reported last year, 56 percent occurred in a rail-highway grade crossing accident. Railroad and rail-highway grade crossings both experienced a decrease in fatalities when 1984 is compared with 1985. There were 598 railroad fatalities in 1984 versus 454 in 1985, and 649 grade crossing fatalities versus 576 during the same periods.

- Injuries resulting from railroad accidents fell from 35,660 in 1984 to 31,617 in 1985; and rail-highway grade crossing injuries also dropped -- from 2,910 in 1984 to 2,683 in 1985.

- When the fourth quarter of 1985 is compared with the fourth quarter of 1984, total railroad and rail-highway grade crossing fatalities declined 11.3 percent. During the same periods of 1984 and 1985, railroad fatalities declined 34.5 percent, from 148 to 97, while rail-highway grade crossing fatalities increased 7.8 percent, from 179 to 193, as shown in Table 9.

TABLE 8. RAILROAD FATALITIES AND INJURIES, BY TYPE OF PERSON, 1984-1985

	FATALITIES		INJURIES**	
CLASSIFICATION	**1984**	**1985**	**1984**	**1985**
Employees on Duty	59	46	33,364	29,822
Employees Not on Duty	5	2	444	419
Passengers on Trains	12	3	1,000	657
Nontrespassers	576	503	2,881	2,561
Trespassers	588	472	773	731
Contractor Employees	7	4	108	110
Total Railroad and Grade Crossing	**1,247**	**1,030**	**38,570**	**34,300**
Railroad Only*	598	454	35,660	31,617
Grade Crossing Only	649	576	2,910	2,683

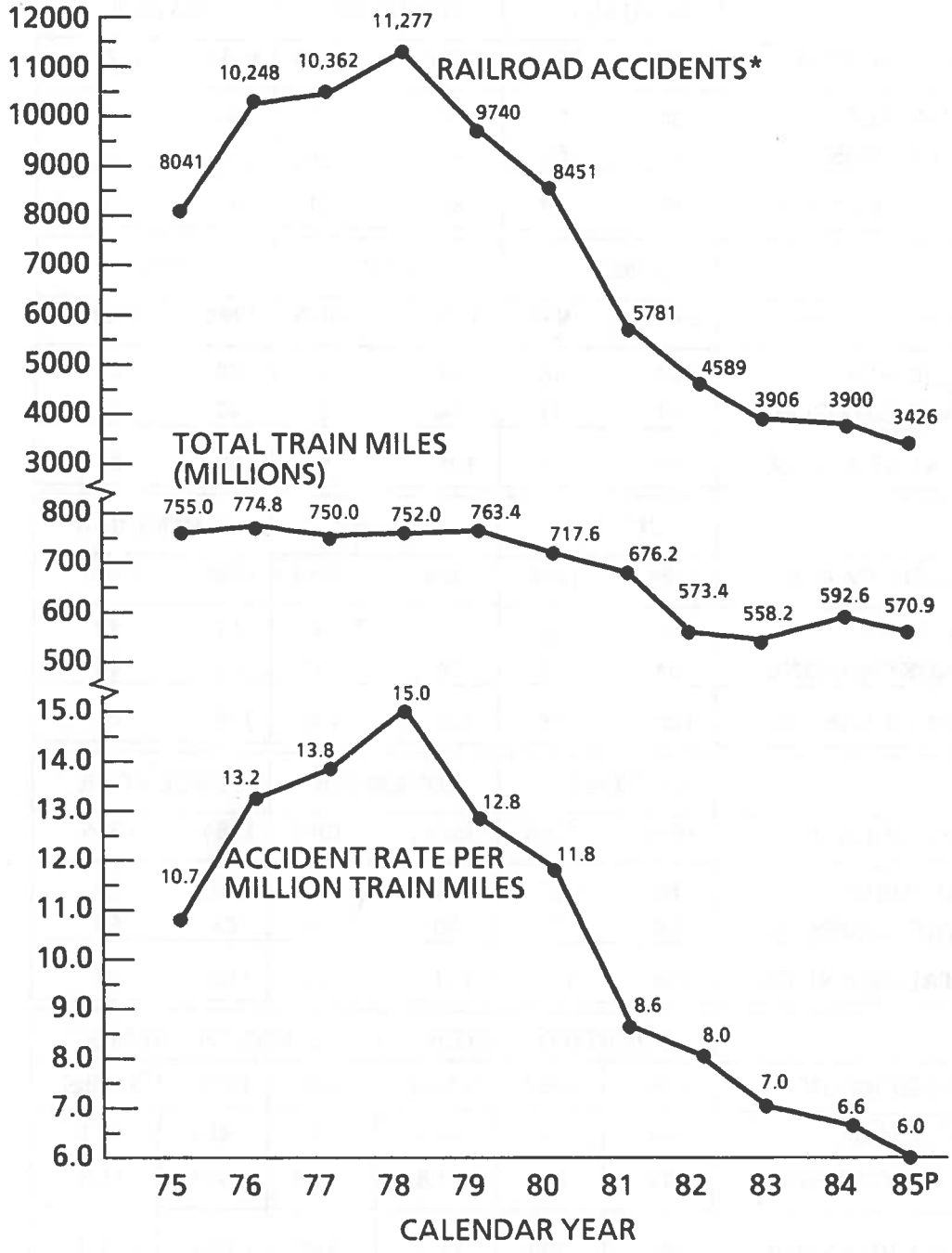
* Includes train and nontrain data.
** Includes occupational illness.

Data supplied as of 5/20/86.

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

CHART 11.

RAILROAD ACCIDENT RATES, 1975 - 1985



P = Preliminary.

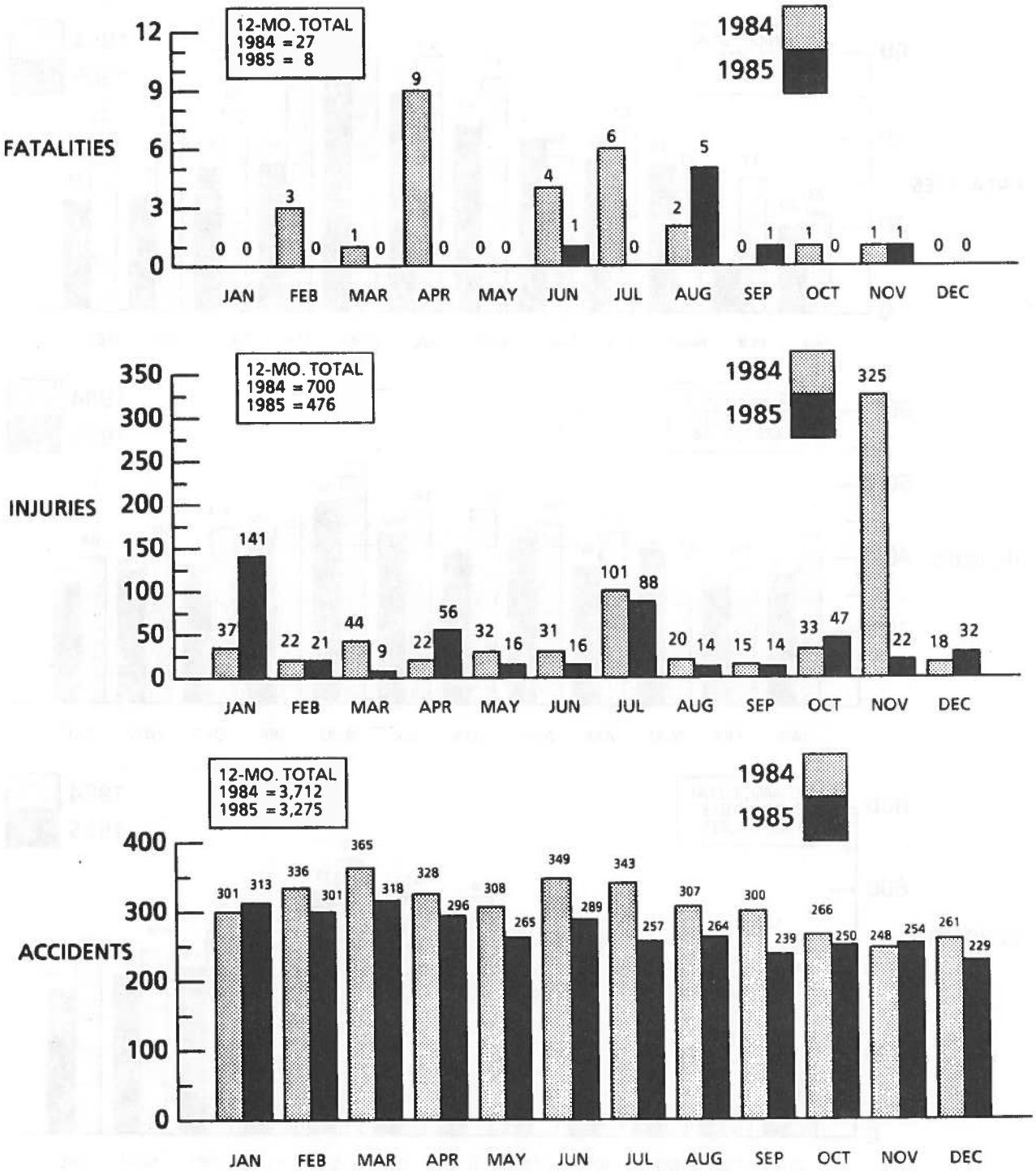
* Train accidents only--also includes those Rail-Highway Grade Crossing accidents which have been classified as Train accidents.

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.
Data supplied as of 5/20/86.

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

CHART 12.

TRAIN ACCIDENT* FATALITIES, INJURIES AND ACCIDENTS, 1984-1985



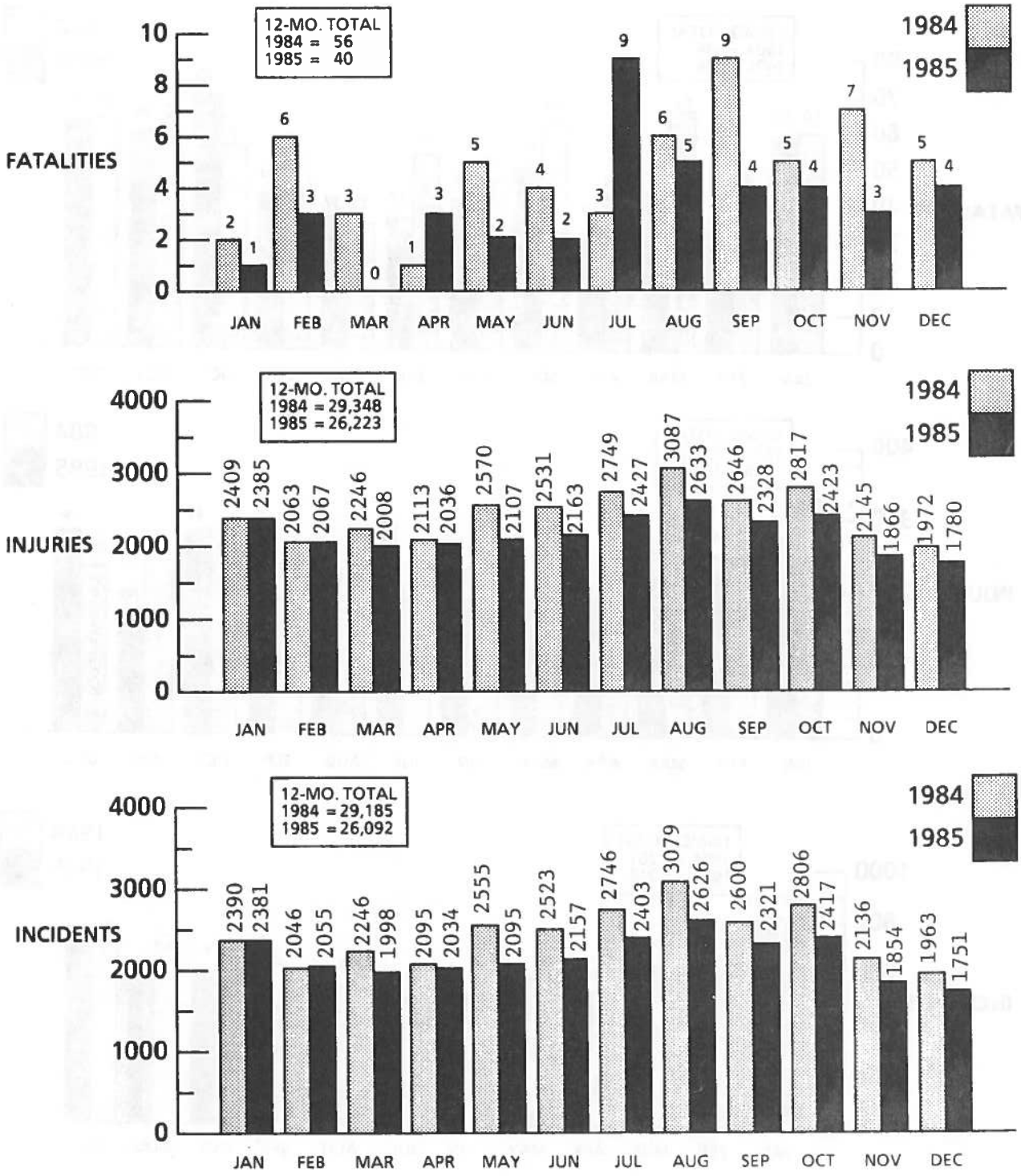
* See Glossary for Train Accident definition. This chart does not include Grade Crossings.

NOTE: 1985 data are preliminary.

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

CHART 14.

NONTRAIN* FATALITIES, INJURIES AND INCIDENTS, 1984-1985



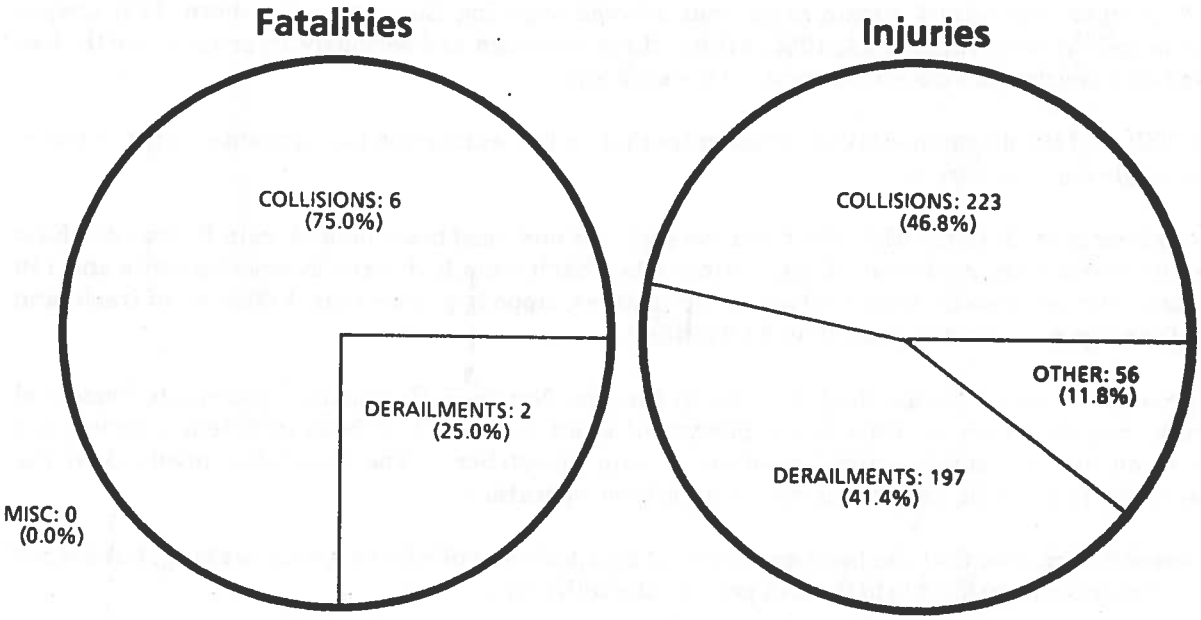
* See Glossary for definition. This chart does not include Grade Crossings.

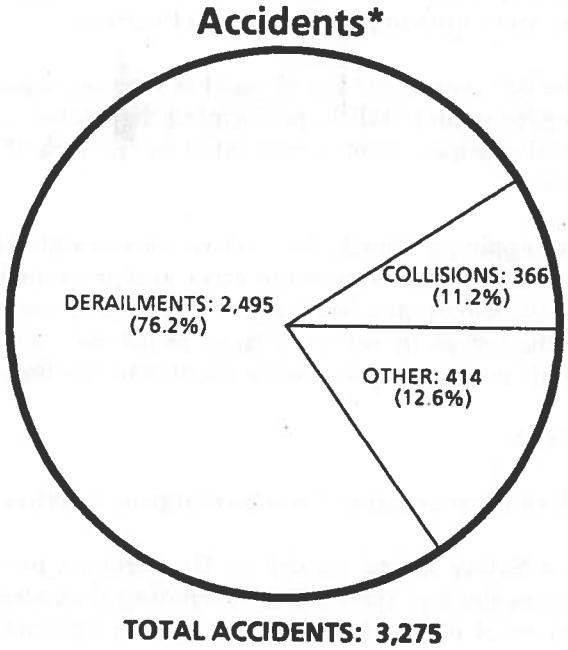
NOTE: 1985 data are preliminary.

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

CHART 16.

TRAIN ACCIDENT* FATALITIES, INJURIES, AND ACCIDENTS BY TYPE, 1985





* 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.

Data supplied as of 5/23/86.

The first collision, on April 13, involved the head-on collision of freight trains designated Extra 6714 West and Extra 7820 East while on single main track near Wiggins, Colorado. Seven locomotive units derailed and were destroyed in the collision and diesel fuel released from ruptured fuel tanks was ignited.

Five train crewmembers were killed and two were injured. Twenty-six of the 40 derailed cars were destroyed. Total damage was estimated at $3.9 million.

The second collision that was the subject of the Safety Board report occurred on April 22 when an eastbound freight train, Extra 7843 East, struck the rear of another freight train of the main track near Newcastle, Wyoming.

During the collision and subsequent derailment sequence several cars of a third freight train, which were standing unattended on an adjacent passing track, were also struck and derailed. In all, five locomotive units, a caboose, and 21 cars derailed. The locomotive units, caboose, and 13 cars were either destroyed or heavily damaged.

The two train crewmembers in the struck caboose were killed, and two other trainmen were injured. Total damage was estimated to be $1.36 million.

The probable cause of the Wiggins accident was that the engineer and other head-end crewmembers of Extra 6714 West fell asleep and failed to comply with signals restricting trains speed. "Contributing to the failure of the engineer and fireman was their consumption of alcohol and fatigue resulting from their voluntary lack of sleep during their off-duty time, aggravated by irregular work/rest cycles," the Board said. Its report noted that the lack of sleep was "voluntary" in that the crewmen did not avail themselves of the opportunity to sleep.

The Newcastle accident was caused by the failure of the engineer and head brakeman of Extra 7843 East to operate their train in compliance with signals restricting train speed because they were asleep or otherwise impaired. "Contributing to their failure was the use of marijuana by the engineer, as well as the fatigue of the engineer and head brakeman due to lack of sleep and irregular and unpredictable working hours," the Board said.

The Safety Board also said there were other contributing elements common to both accidents and which the Board made the subject of safety recommendation to the Burlington Northern. It cited (1) that conductor's failures in both instances to protect their trains in compliance with operating rules; and (2) Burlington Northern's failure to (a) supervise properly its train operations, (b) ensure that its supervisors and employees had a uniform and correct understanding of what was required by BN rules and (c) equip its locomotive units with fail-safe backup devices to stop a train should its engineer fail to comply with restrictive signal aspects and/or become incapacitated, fall asleep, or become otherwise impaired while operating the train.

SOURCE: NTSB News Digest, Vol. 4, No. 5.

Rail Failure Caused Amtrak Derailment

The catastrophic failure of a rail in a track curve caused an Amtrak train to derail near Woodlawn, Texas, killing four persons and injuring 72 others, the National Transportation Safety Board reported.

The accident occurred November 12, 1983, when Amtrak train No. 21 -- the Eagle -- passed over a section of rail that a Missouri Pacific Railroad repair crew had installed to replace a broken rail. To make the repair, a work crew removed a length of the continuous welded chrome-vanadium alloy high strength outer rail in the curve and replaced it with a 19-foot 6-inch bolted-in-place standard

Detection System Could Have Prevented Massive Amtrak Derailment

An automatic detection system such as that which now warns train crewmembers of dangerous overheating of axle bearings on Amtrak's latest passenger cars could have prevented the massive Amtrak derailment at Kittrell, North Carolina, on March 5, 1984, the National Transportation Safety Board reported.

The Safety Board concluded that failure of an overheated axle on the third locomotive unit of the Washington-to-Miami "Silver Star" derailed the unit and all 18 cars behind it, injuring 52 of the 293 persons aboard. Damage in the wreck was estimated at $2.5 million.

The Board cited as a contributing factor in the accident the "lack of an effective system" for detection of overheated locomotive traction motor support bearings before they fail, and recommend such a system for all Amtrak passenger train locomotive units.

Trackside "hot box" detectors do not scan locomotive traction motor support bearings, which are mounted between the wheels. In the Kittrell accident, railroad employees' visual observation of the train proved to be "ineffective". Amtrak's newest passenger cars have the on-board detection system because their wheel bearings, like Amtrak locomotives, are between the wheels. Bearings on older passenger cars can be scanned by trackside detectors.

Because most of the injuries in the accident were caused by flying luggage, or by passengers being thrown against interior fixtures of the passenger cars, the Safety Board also reiterated previous recommendations to Amtrak and the Federal Railroad Administration. The recommendations seek improved Amtrak car racks that are more likely to retain luggage in a derailment, and quicker action on an FRA study of the interior design of passenger cars.

SOURCE: NTSB News Digest, No. 4, No. 5.

RAIL RAPID TRANSIT

Users of Rail Rapid Transit (RRT) statistics should exercise caution when comparing accident, fatality, and injury data for the 12 months of 1984 and 1985. Data have not been received from the New York City Transit Authority (NYCTA) and the New Jersey Port Authority Corporation (PATCO) for the twelve months of 1985. In addition, some monthly data for 1985 have not been received from the following transit properties: Massachusetts Bay Transportation Authority (December), Mass Transit Administration - Maryland (November/December), Port Authority Trans-Hudson (December), and Staten Island Rapid Transit Operating Authority (December). The following comparisons are made using data which have been received as of March 17, 1986.

- There were five RRT revenue train accidents reported in the fourth quarter of 1985, compared with four in the fourth quarter of 1984.

  The following table summarizes train accidents by type for the fourth quarter of 1984 and 1985.

	1984 FOURTH QUARTER	1985* FOURTH QUARTER
Collision with Other Train	0	2
Collision with Obstacle	0	0
Collision with Person	2	0
Derailment	0	1
Fire	0	0
Rail-Highway Crossing	2	2
Totals	4	5

- RRT train and nontrain accidents/incidents, injuries, and fatalities all experienced a decline when the fourth quarter of 1984 and 1985 are compared (see Table 10). In the fourth quarter of 1984, there were 598 accidents/incidents versus 309 in the same period of 1985. Fatalities and injuries fell from 21 and 577 to one and 308, respectively, during these same periods. During the fourth quarter of 1985, the predominant causes of RRT train and nontrain personal casualties (injuries and fatalities) was from persons slipping and falling. Of the 309 casualties reported in the fourth quarter of 1985, 127 were the result of slips and falls (41 percent), while in the fourth quarter of 1984, 358 of the 598 casualties reported were also the result of slips and falls (60 percent).

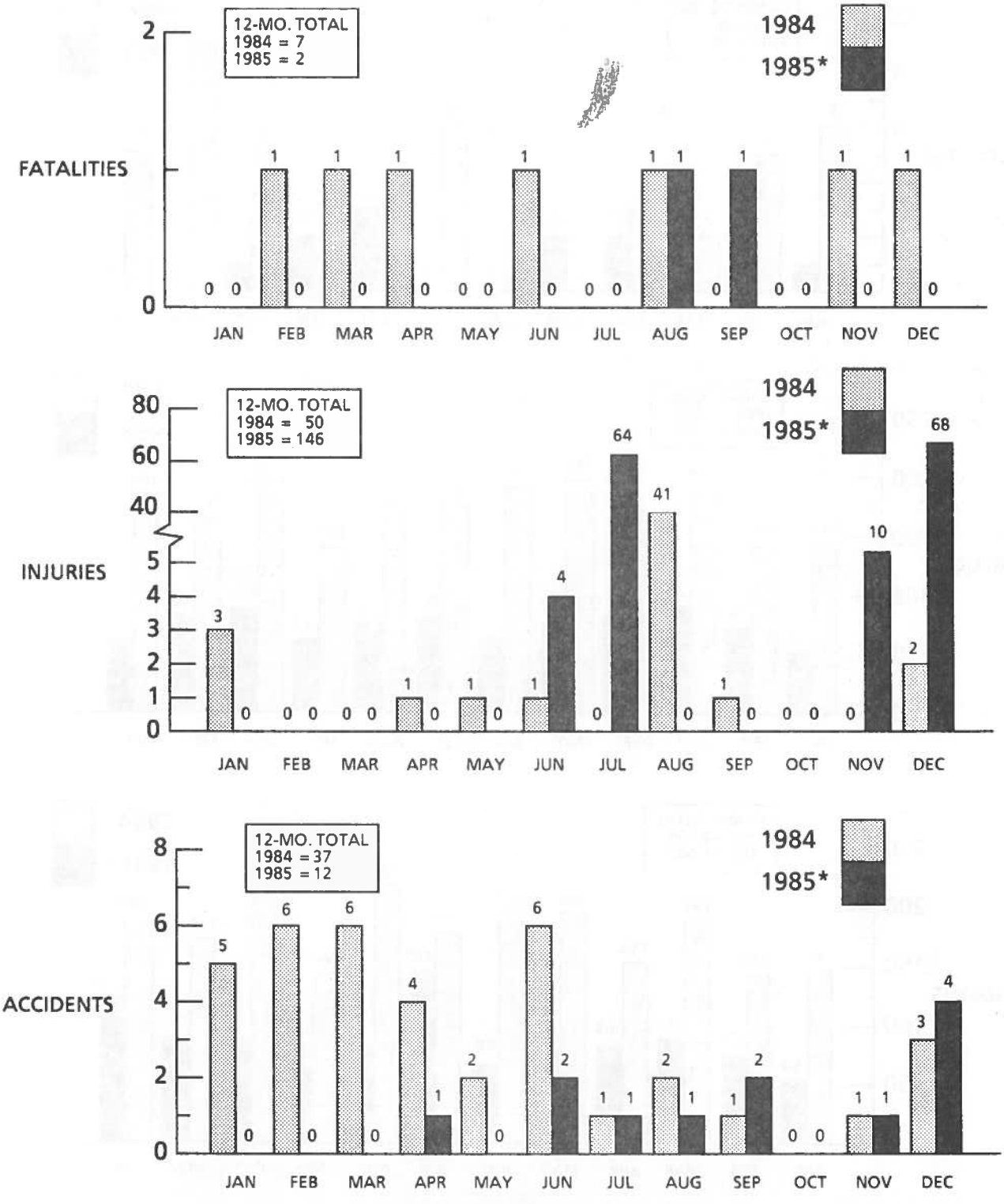
- There was also a decrease in the total number of RRT train accidents/incidents, injuries, and fatalities when 1985 and 1984 data are compared as shown in Table 10. Accidents/incidents fell from 2,202 in 1984 to 1,054 in 1985, injuries dropped from 2,147 to 1,039, and fatalities declined from 55 to 15.

* Preliminary data prior to verification.

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

CHART 17.

RRT TRAIN FATALITIES, ACCIDENTS AND INJURIES, 1984-1985



* April-December 1985 are preliminary data prior to verification.

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 1985 was from trains striking other trains. Of the 12 train accidents in 1985, five were of this type -- 42 percent of the total train accidents.

Derailments, which had been the major cause of accidents in 1984, have dropped to one for 1985.

In 1985, the goal of current research was to continue to decrease the likelihood of transit fires and to increase the effectiveness of all parties involved when emergency fire situations occur, thus keeping any casualties and property damage to minimum levels.

The goal of any safety program should be to provide the highest level of safety practical. The key word in this statement is "practical." No safety program can provide for the absolute safety of a system. What a safety program can and should do is minimize the risk associated with the use or operation of a system. In mass transit, the goal is to minimize the risk to the traveling public, transit system employees, and to the emergency services personnel who may respond to a particular condition. This goal may be accomplished by structuring a safety program whose two main functions are concerned with accident prevention and emergency response. The accident prevention function should be concerned with the identification and resolution of potential hazards in the transit system. This hazard identification and resolution process should include a thorough examination of the four system elements. These four system elements are the system equipment and facilities,procedures, personnel, and system operating environment. Such an identification and resolution process, when applied with the four system elements, is in essence the application of the system safety concept. Transit systems are being encouraged to adopt the system safety concept and implement system safety programs to manage the accident prevention and emergency response functions.

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

SAFETY PROGRAM HIGHLIGHTS

Fire Safety

The UMTA fire safety program is directed at providing transit systems with information to assist them in minimizing the fire threat on their respective vehicles. To address the concern over the issue of fire safety in rail transit systems the Urban Mass Transportation Administration has published Recommended Fire Safety Practices for Rail Transit and Materials Selection. These recommended practices have resulted in a major improvement in the fire safety of rail transit materials. Continuing fire safety efforts are directed at the toxicity of the combustion products of rail transit materials and a study of the feasibility of rail vehicle fire detection and suppression systems.

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

Rail System Safety Training

To assist transit operators in the development and implementation of system safety 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

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 low rate in 1984 with only one fatal accident, U.S. air carriers flying large aircraft had seven fatal accidents in 1985 -- four in scheduled service and three in nonscheduled or charter flying. During the same period, total U.S. air carrier accidents rose from 18 to 24.

- There were 526 fatalities in all U.S. air carrier operations during 1985 compared with four in 1984. Scheduled air carrier operations accounted for 197 of the total 526 air carrier fatalities, and 329 were attributed to nonscheduled operations. The civilian airliner that crashed in Gander, Newfoundland, on December 12, 1985, while flying American soldiers under charter accounted for 256 of the 329 fatalities last year.

- Commuter carriers had six fatal accidents and 35 fatalities in 1985, compared with seven fatal accidents and 46 fatalities in 1984. There were 0.25 fatal accidents for every 100,000 departures in 1985 versus 0.26 in 1984, which represents a 3.8 percent reduction in the fatal accident rate. The total of 17 accidents recorded by commuter carriers in 1985 was a record low and a 19 percent decrease from the 21 accidents in 1984.

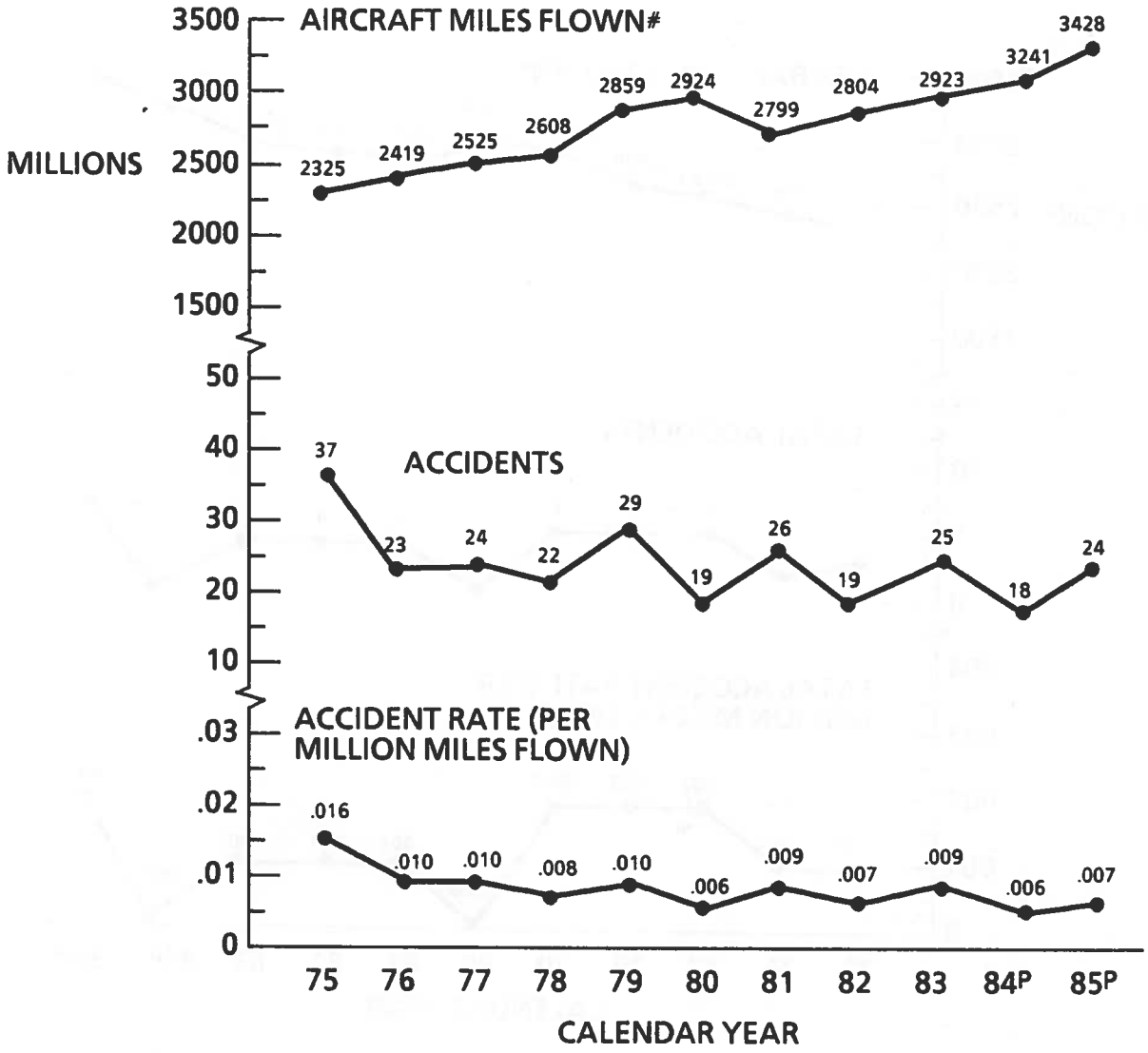
- The fatal accident rate for on-demand air taxis rose nearly 50 percent during 1985. On-demand air taxis recorded 35 fatal accidents and 77 fatalities in 1985 versus 23 fatal accidents and 52 fatalities in 1984, resulting in 52 and 48 percent increases, respectively. Total on-demand air taxi accidents increased nearly 5 percent in 1985 -- from 146 in 1984 to 153 in 1985.

- During the fourth quarter of 1985, there were four U.S. air carrier accidents compared with five during the same period of 1984. The one fatal accident reported in the fourth quarter of 1985, at Gander, Newfoundland, resulted in 256 fatalities, while no fatal accidents or fatalities occurred in the fourth quarter of 1984. Serious injuries declined from eight to one in the fourth quarter of 1984 and 1985, respectively.

- Commuter carriers experienced a decrease in fatalities, fatal accidents, and total accidents, while serious injuries remained constant, when the fourth quarter of 1985 is compared with the same 1984 period. However, on-demand air taxis recorded an increase in fatalities, fatal accidents, and serious injuries. Only total accidents decreased during the comparable periods (see Tables 11 and 12).

CHART 20.

ACCIDENT RATES FOR U.S. AIR CARRIERS ALL SCHEDULED AND NONSCHEDULED SERVICE* 1975 - 1985



P = Preliminary.

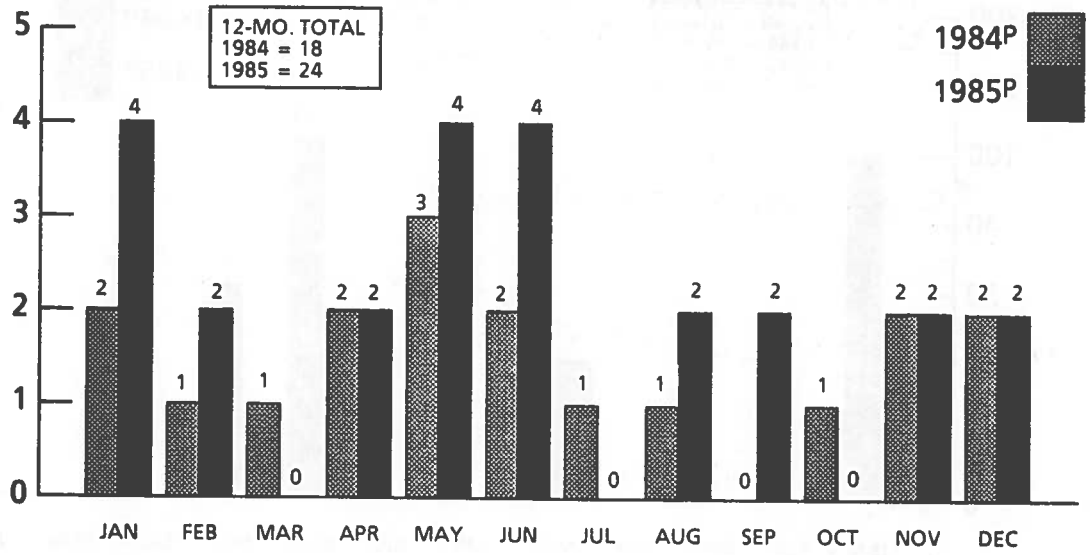
* Includes accidents involving deregulated all cargo air carriers and commercial operators of large aircraft when those accidents occurred during 14 CFR 121, 125, and 127 operations.

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

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

CHART 22.

U.S. AIR CARRIER ACCIDENTS*, 1984 - 1985

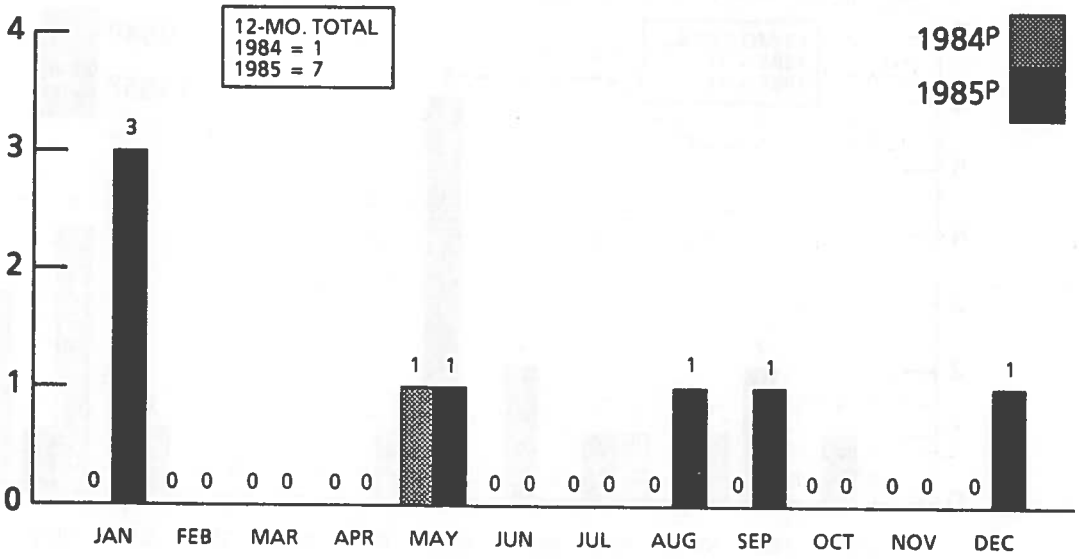


P = Preliminary.
* All large carriers operating under 14 CFR 121, 125, and 127.

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

CHART 23.

U.S. AIR CARRIER* FATAL ACCIDENTS, 1984 - 1985

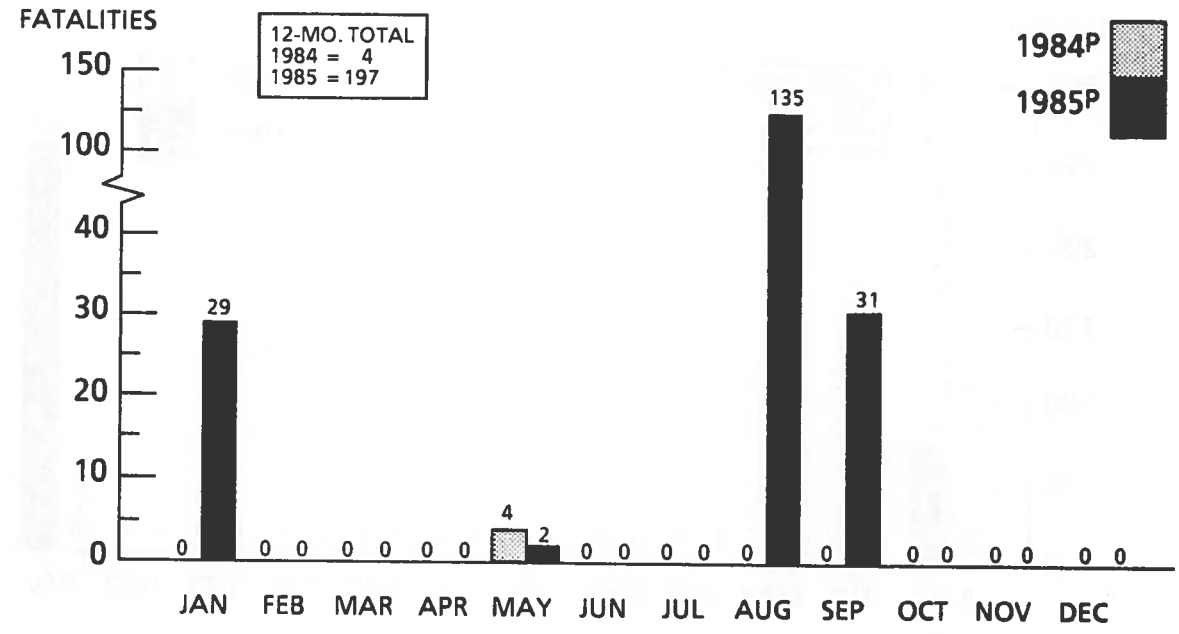


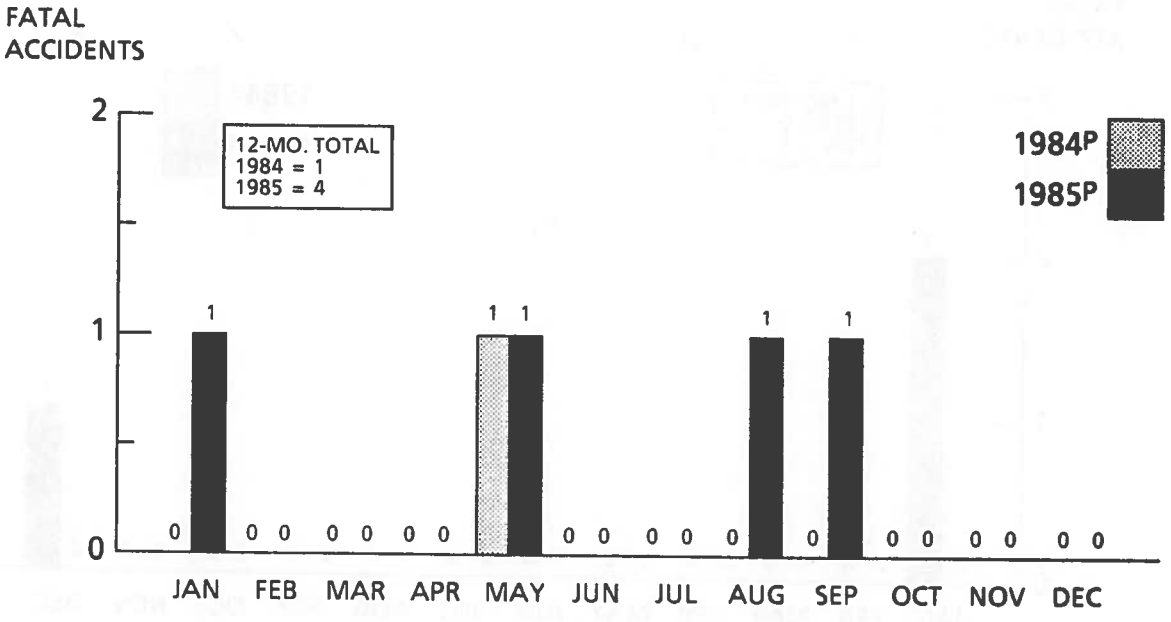
P = Preliminary.
* All large carriers operating under 14 CFR 121, 125, and 127

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

CHART 26.

U.S. AIR CARRIER FATALITIES AND FATAL ACCIDENTS
ALL SCHEDULED SERVICE*
1984 - 1985



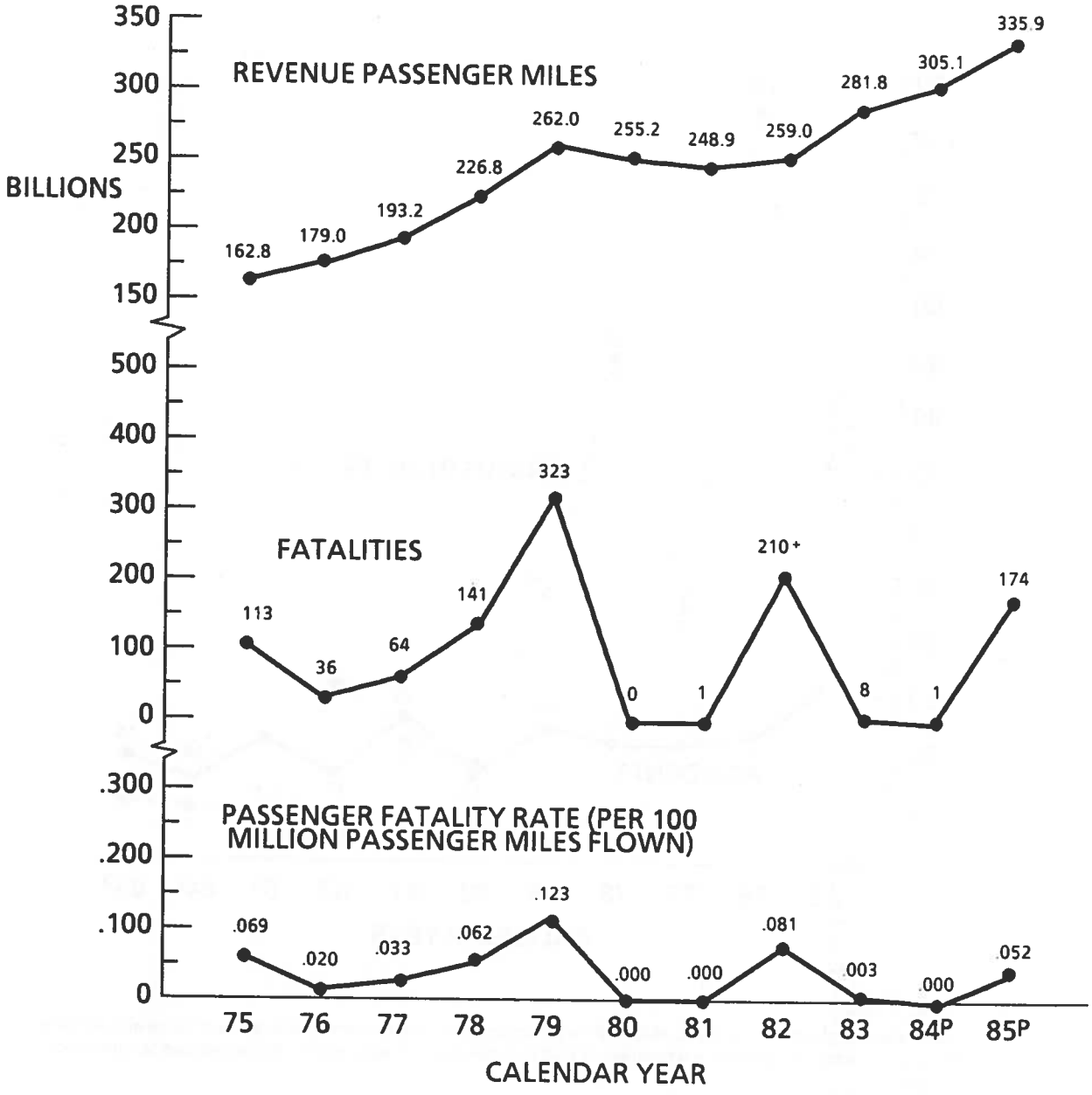


P = Preliminary.
* All scheduled service operating under 14 CFR 121, 125, and 127.

Source: NTSB, Safety Studies and Analysis Division, SP-30.

CHART 28.

U.S. AIR CARRIER PASSENGER FATALITY RATES
ALL SCHEDULED REVENUE PASSENGER SERVICE*
1975 - 1985

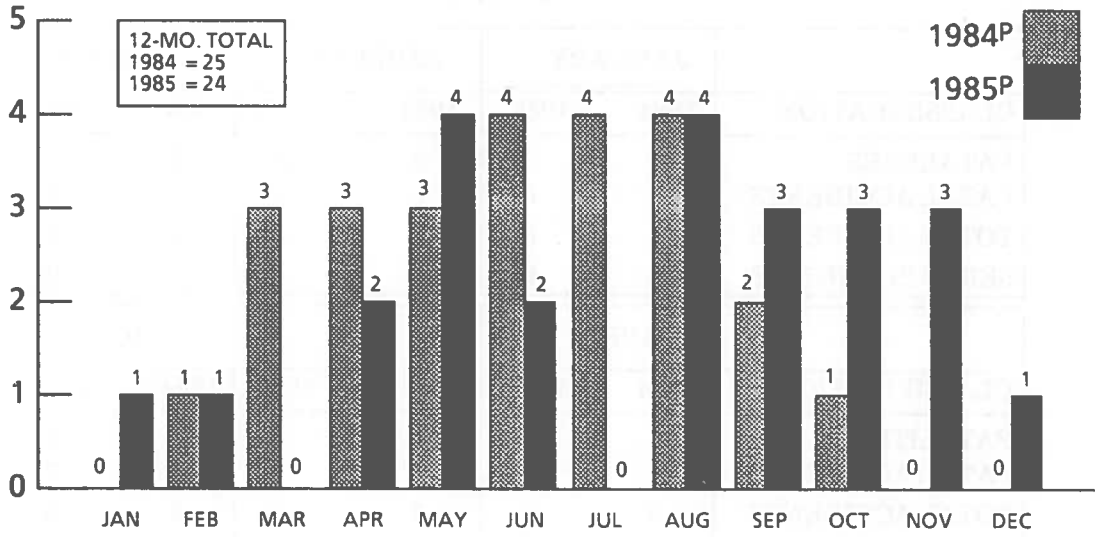


P = Preliminary.
* All scheduled service operating under 14 CFR 121, 125 and 127. Nonscheduled service not included.
\+ 209 Passenger fatalities were used in computing rates (1 fatality resulting from sabotage 8/11/82 in Honolulu, HI, was excluded).

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

CHART 30.

U.S. CIVIL AVIATION MID-AIR COLLISION ACCIDENTS*, 1984 - 1985



P = Preliminary.
* Both aircraft airborne, includes General Aviation and Air Carrier.

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

TABLE 12.

ON-DEMAND AIR TAXIS* ACCIDENTS, FATALITIES AND INJURIES 1984-1985

	JANUARY		FEBRUARY		MARCH	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
FATALITIES	5	4	2	9	5	5
FATAL ACCIDENTS	3	2	2	3	2	2
TOTAL ACCIDENTS	12	26	12	8	10	12
SERIOUS INJURIES	2	5	1	2	5	6

	APRIL		MAY		JUNE	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
FATALITIES	5	10	2	5	7	6
FATAL ACCIDENTS	2	2	1	3	3	3
TOTAL ACCIDENTS	7	13	9	13	18	14
SERIOUS INJURIES	1	2	3	6	2	1

	JULY		AUGUST		SEPTEMBER	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
FATALITIES	17	1	3	8	0	6
FATAL ACCIDENTS	6	1	1	3	0	4
TOTAL ACCIDENTS	18	11	10	13	15	12
SERIOUS INJURIES	8	4	3	2	7	4

	OCTOBER		NOVEMBER		DECEMBER	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
FATALITIES	3	9	0	12	3	2
FATAL ACCIDENTS	1	5	0	6	2	1
TOTAL ACCIDENTS	11	13	9	10	15	8
SERIOUS INJURIES	1	9	1	7	1	3

	FOURTH QUARTER			12-MONTH TOTALS		
CLASSIFICATION	1984	1985	% Chg	1984	1985	% Chg
FATALITIES	6	23	+283.3	52	77	+48.1
FATAL ACCIDENTS	3	12	+300.0	23	35	+52.2
TOTAL ACCIDENTS	35	31	-11.4	146	153	+4.8
SERIOUS INJURIES	3	19	+533.3	35	51	+45.7

NOTE: 1984 and 1985 data are preliminary

* All scheduled service operating under 14 CFR 135

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30

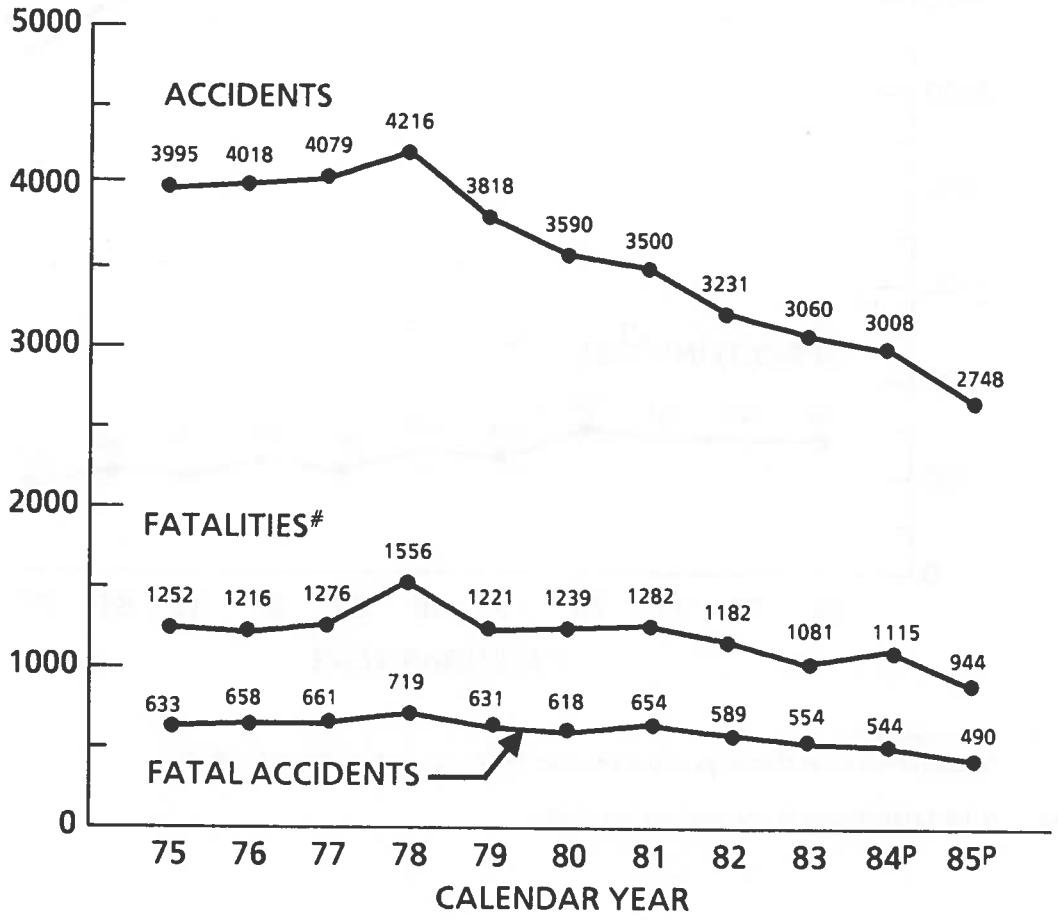
GENERAL AVIATION

- General aviation significantly improved its safety record last year. Accidents, fatal accidents, fatalities, and serious injuries all experienced a decrease in 1985. Accidents dropped from 3,008 in 1984 to 2,748 in 1985, fatal accidents fell from 544 to 490, fatalities declined from 1,115 to 944, and serious injuries decreased from 595 to 497.

- The number of general aviation accidents and fatal accidents declined during the fourth quarter of 1985 when compared with the same period in 1984. There were 516 accidents and 123 fatal accidents reported in the fourth quarter of 1985 while 579 accidents and 135 fatal accidents were reported in the fourth quarter of 1984. Fatalities and serious injuries also fell during the same periods. There were 266 fatalities and 112 serious injuries during the fourth quarter of 1985 versus 315 fatalities and 137 injures during the last three months of 1984.

CHART 31.

U.S. GENERAL AVIATION* ACCIDENTS, FATALITIES, AND FATAL ACCIDENTS, 1975 - 1985

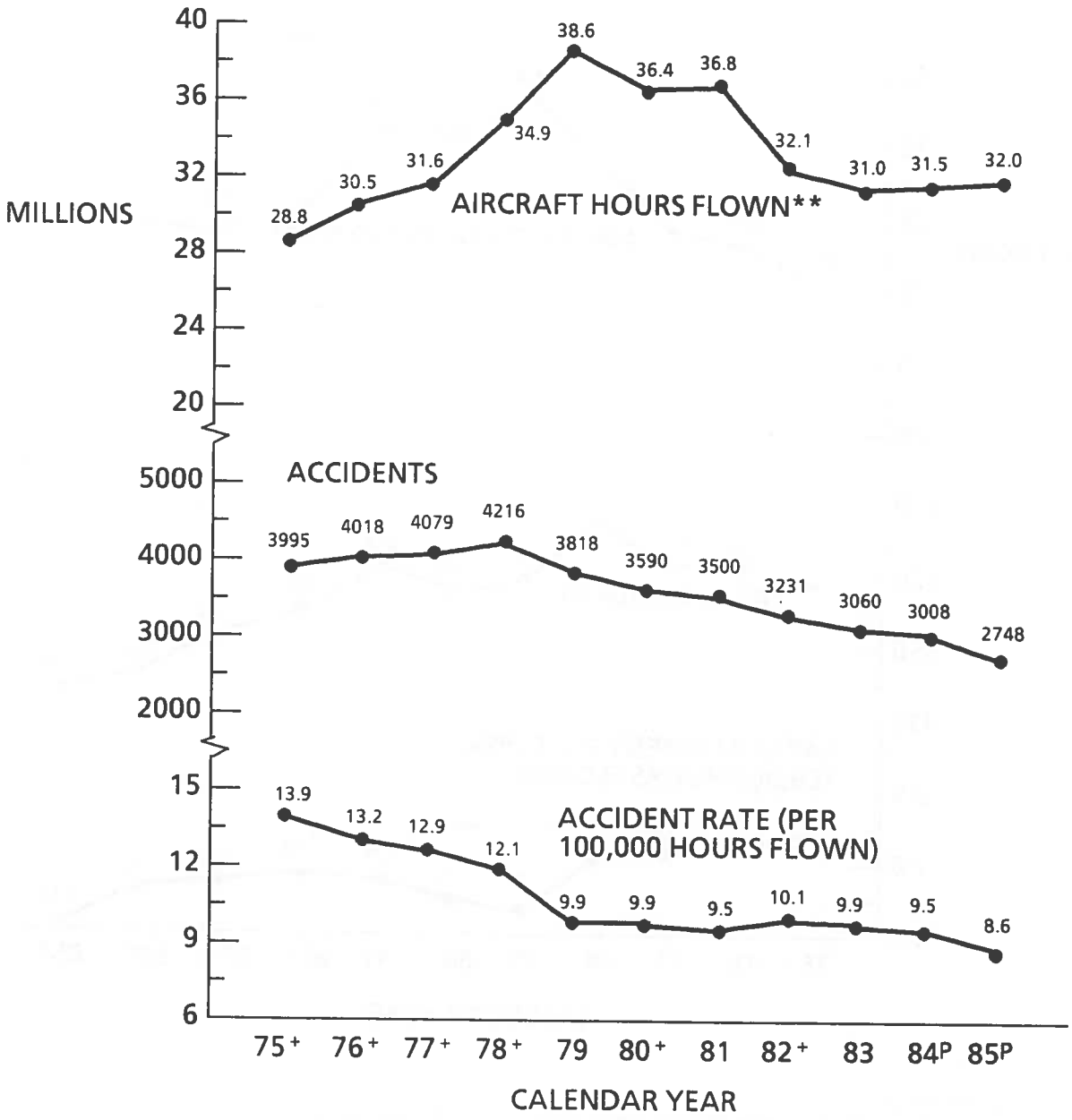


P = Preliminary.
* All operations other than those operated under 14 CFR 121, 125, 127 and 14 CFR 135.
\# Includes air carrier fatalities when in collision with General Aviation aircraft.

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

CHART 33.

U.S. GENERAL AVIATION* ACCIDENTS AND RATES 1975-1985

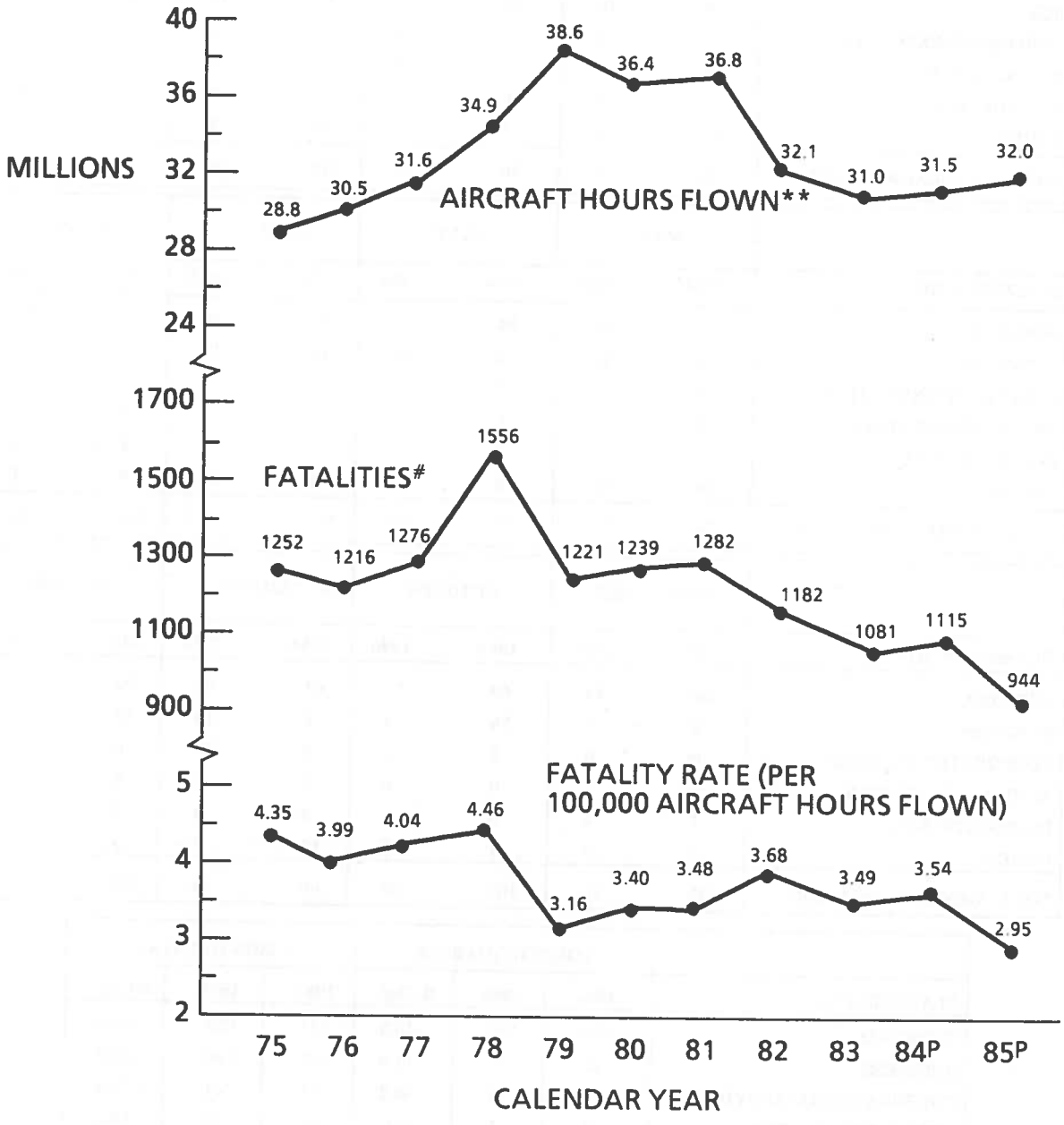


P = Preliminary.
* All operations other than those operated under 14 CFR 121, 125, 127, and 14 CFR 135.
** Source of estimate: FAA.
\+ Suicide/sabotage accidents included in all computations except rates (1975 - 2, 1976 - 4, 1977 - 1, 1978 - 2, 1980 - 1, 1982 - 3).

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

CHART 35.

U.S. GENERAL AVIATION* FATALITIES AND RATES 1975 - 1985

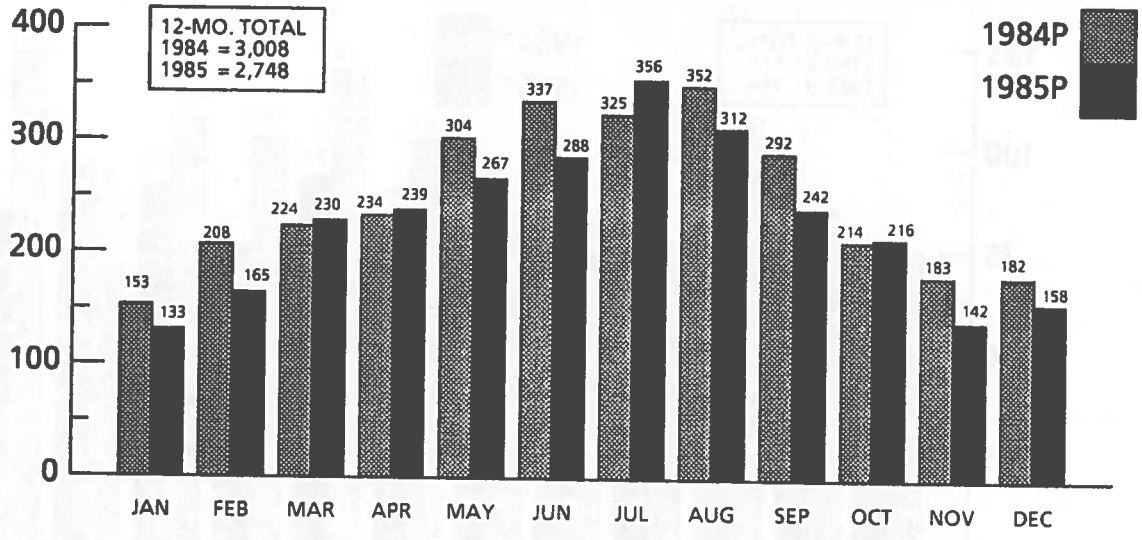


P = Preliminary.
* All operations other than those operated under 14 CFR 121, 125, 127, and 14 CFR 135.
** Source of estimate: FAA.
\# Includes air carrier fatalities when in collision with General Aviation aircraft.

SOURCE: NTSB, Safety Studies & Analysis Division, SP-30.

CHART 36.

U.S. GENERAL AVIATION* ACCIDENTS, 1984 - 1985

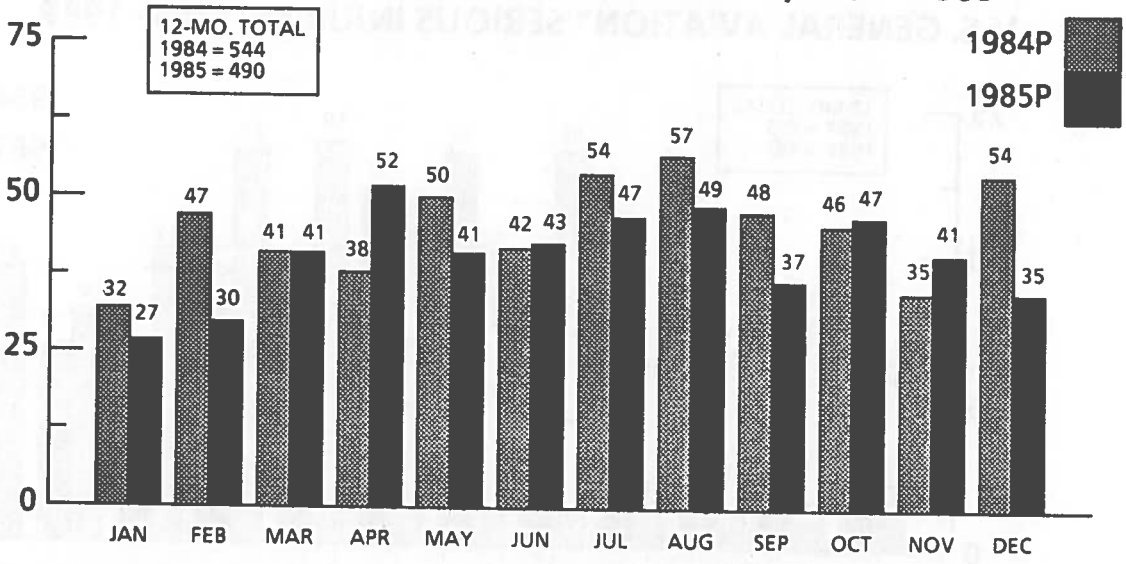


P = Preliminary.
* All operations other than those operations under 14 CFR 121, 125, 127 and 14 CFR 135.

SOURCE: NTSB, Safety Study & Analysis Divsion, SP-30.

CHART 37.

U.S. GENERAL AVIATION* FATAL ACCIDENTS, 1984 - 1985

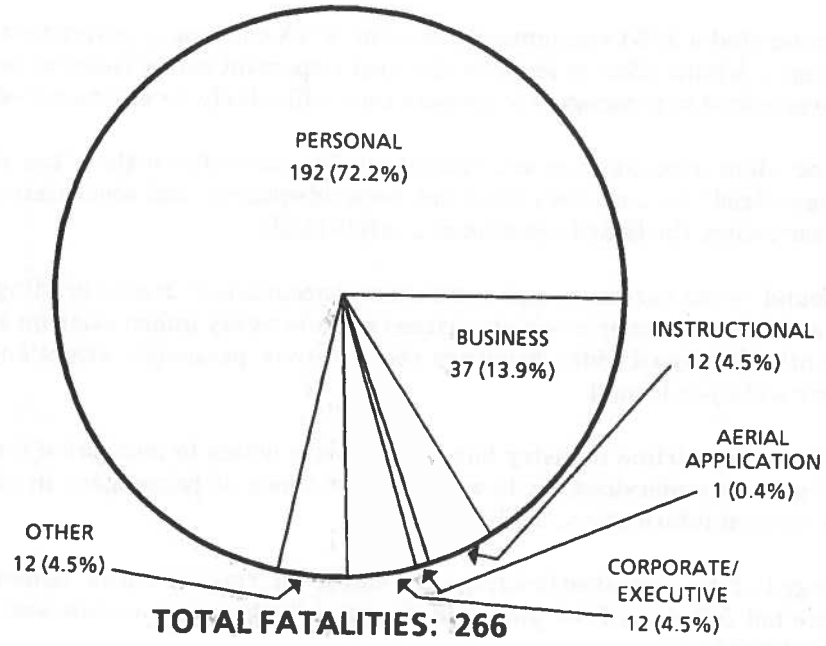


P = Preliminary.
* All operations other than those operations under 14 CFR 121, 125, 127, and 14 CFR 135.

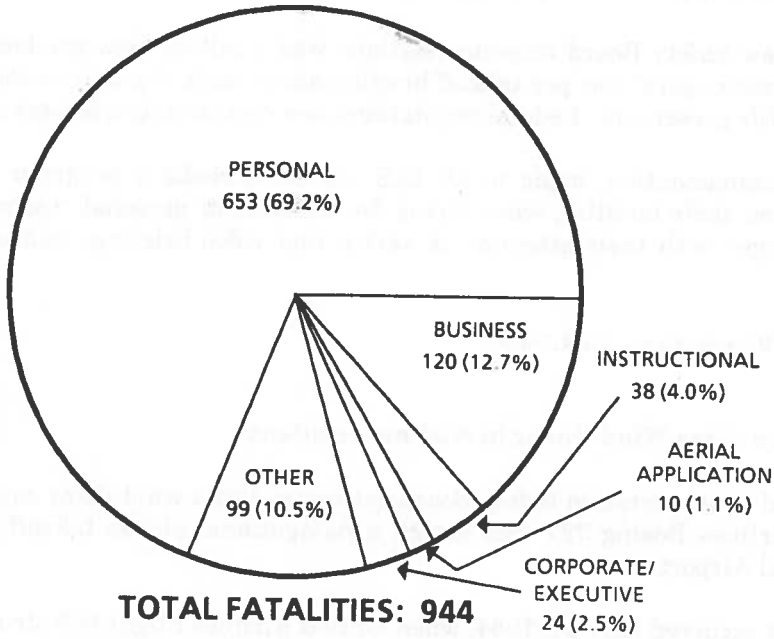
SOURCE: NTSB, Safety Study & Analysis Divsion, SP-30.

CHART 40.

GENERAL AVIATION FATALITIES BY AIRCRAFT CLASSIFICATION, FOURTH QUARTER, 1985



GENERAL AVIATION FATALITIES BY AIRCRAFT CLASSIFICATION, TWELVE MONTHS, 1985



Note: 1985 Data are preliminary.

SOURCE: NTSB, Safety Study & Analysis Division, SP-30.

As a result of its investigation,the Board said the accident occurred when the pilot made a decision to take off under conditions that were conducive to severe wind shear. By definition, wind shear is an abrupt change in wind speed and direction. The result can be a loss of lift on the aircraft wing, a situation that can result in an accident when it occurs at low speed and low altitudes.

In analyzing the accident, the Board said it believed the pilot's decision to take off was influenced by several factors including:

- the limitations of the low-level wind shear alert system in providing readily usable shear information;
- the pilot's experience in operating successfully under wind shear condition at Denver's Stapleton Airport;
- the successful departures of several aircraft prior to the United Airlines flight; and
- the fact that the pilot did not hear a wind shear report from a departing aircraft similar to his own because there was congestion on the air traffic control radio frequency.

The air traffic controller provided the United flight with the winds reported by the airport's low level wind shear alert system. But he did not -- as required -- use the term "wind shear alert" in his clearance. The pilot said he did not hear the wind reports given by the controller.

Based on the United Airlines' accident, and a second wind shear accident involving a USAir Boeing 727 at Detroit Metropolitan Airport on June 13, 1984, the Board made two recommendations to the Federal Aviation Administration which urged the agency to:

- Conduct research to determine the most effective means to train all flightcrew members in cockpit resources management, a concept designed to improve the cockpit decision-making process. In addition, airlines should be required to apply the research findings in this area to pilot training programs.

- Develop, in cooperation with the airlines and aircraft manufacturers, a common wind shear training program which airlines would be required to include in their training programs.

SOURCE: NTSB News Digest, Vol. 4, No. 2.

Cargo Flight Crash Caused by Flight Control Malfunction

The crash of an Air Continental cargo flight near Windsor Locks, Connecticut, June 4, 1984, which killed three persons, was caused by sudden roll to the right triggered by the failure of a "spoiler" to reflect properly.

The plane, a Gated Learjet-23, was over the approach lights to Bradley International Airport in a stabilized attitude when it began its roll. The roll continued until the bank angle was about 90 degrees and the aircraft collided with the ground, killing both pilots and a passenger.

The Board's investigation showed that the actuator rod on the right wing spoiler -- spoilers, when deployed, act as a speed brake -- was in the extended position while the left wing spoiler actuator was in the retracted position.

The Board concluded that the pilot extended the spoilers during the turn to the final approach and that when the aircraft was over the runway approach of lights, the pilot attempted to retract the spoilers but the right spoiler remained extended. This asymmetrical condition caused the airplane to roll to the right.

SAFETY PROGRAM HIGHLIGHTS

Back to Basics

The FAA has initiated a new program called "Back to Basics" to refocus attention on the fundamentals, asking pilots to get Back to the Basics in their approach to flying. This three year "Back to Basics" program will address twelve different subject areas. Every three months the focus on the "Back to Basics" program will change. The first area covered will be "Takeoff and Landing" phase of flight. Other subjects include weather, fuel, collision avoidance, decision-making, aeromedical factors, emergency procedures, weather briefings, preflight checks, maintenance, stall/spin avoidance, and communications.

SOURCE: FAA, Safety Analysis Division, ASF-200.

Wind Shear Technology

Hearings in October 1985 by the Senate and House Aviation Subcommittees on the subject of the wind shear phenomenon, concluded that the equipment used to detect wind shear around airport runways is inadequate. The members of the subcommittees recommended that the FAA provide development funds to improve detection. However, they emphasized that the FAA also must address the current situation by providing training and guidelines to pilots for coping with wind shear.

SOURCE: ASF Bulletin, Vol. 1, No. 4, p. 7.

Upgrade of Medical Kits

Senate bill S.63, introduced by Senator Goldwater (R-AZ) to upgrade medical kits aboard airliners and to relieve appropriate persons of liability for using them during inflight emergencies, was passed in July 1985. The house version (H.R. 386) introduced by Representative Pursell (R-MI) is still pending before the Aviation Subcommittee of the House Public Works and Transportation Committee. However, the FAA has moved ahead on major parts (namely, the upgrading of the kits) of the proposed legislation, which had been of critical concern to the subcommittee members. The subcommittee presently is focusing its activity on the "Good Samaritan" provisions.

SOURCE: ASF Bulletin, Vol. 1, No. 4, p. 7.

MARINE

WATERBORNE

Users of Waterborne statistics should exercise caution when comparing accident, fatality, and injury data for 1984 and 1985. Data for 1985 shown in the following tables are incomplete at this time since many of the marine casualties are still being investigated or are in various stages of completion.

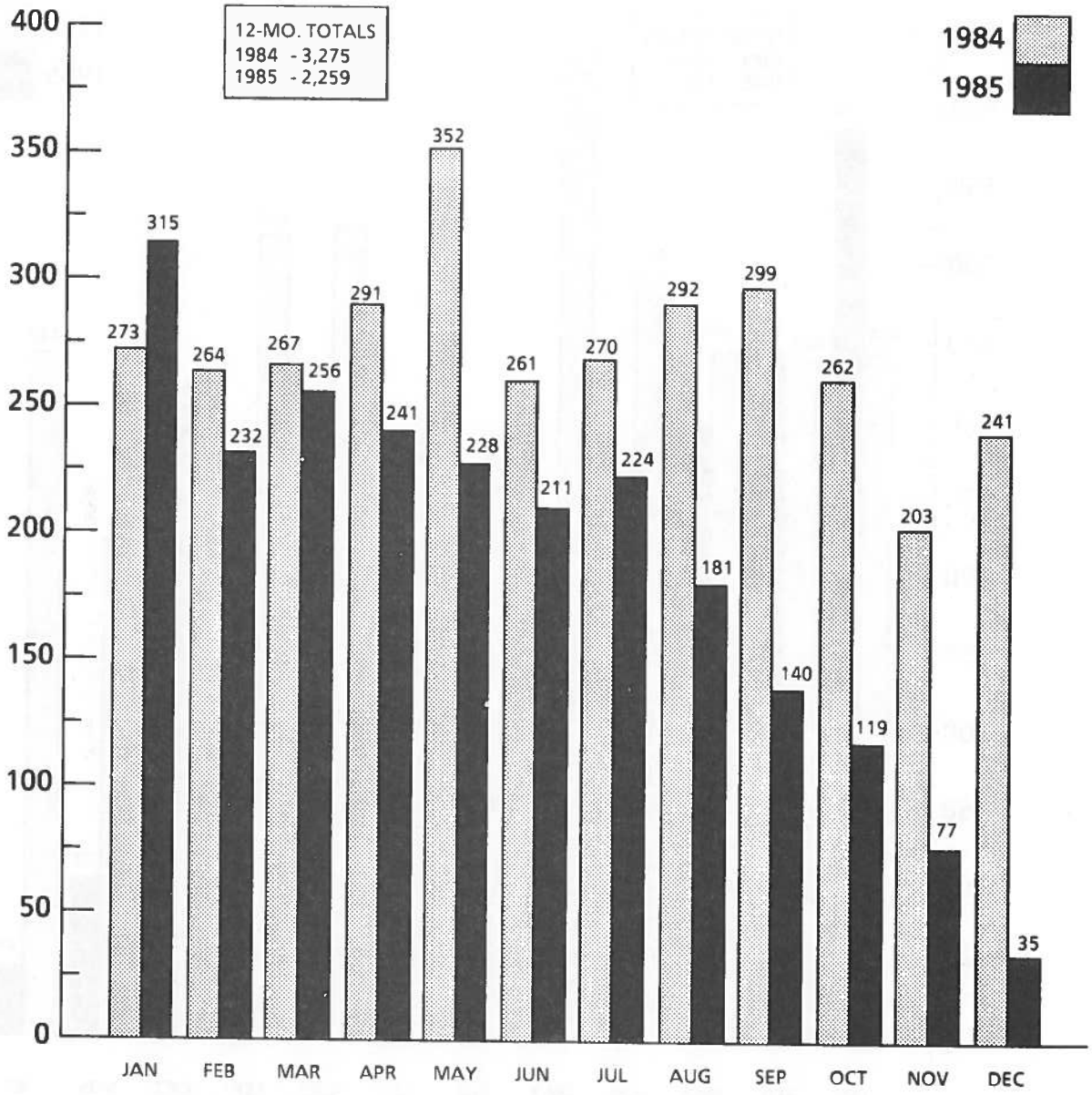
- In 1985, no major ocean-going U.S. merchant vessel losses were reported. As of April 17, 1986, approximately 65 percent of the casualty cases were completed. So far, 2,259 marine accidents involving 3,358 vessels have been reported. As a result of these marine accidents, 69 fatalities and 57 injuries have been accounted for.

- There were two losses of major, ocean-going U.S. merchant vessels during 1984. The tankship AMERICAN EAGLE (20,520 G.T.) sank in the Gulf of Mexico on February 27, 1984, after an explosion in the cargo tank area. As a result of this casualty, five crew members lost their lives, two remain missing and are presumed dead, and nine crew members were injured. On October 31, 1984, the tankship PUERTO RICAN (20,295 G.T.) suffered an explosion in the cargo tank area while off the California coast. As a result of the explosion, the ship broke in two and the after section later sank. One crew member remains missing and is presumed dead and the pilot and one crew member were injured.

- Approximately 96 percent of the 1984 casualty cases have been completed. In 1984, 93 percent of all U.S. vessel losses were uninspected vessels and fishing vessels accounted for 74 percent of the total number of losses. There were 5,398 vessels involved in 3,275 marine accidents resulting in 113 fatalities and 134 injuries during 1984. Also, in 1984, 118 fatalities were reported as a result of non-vessel-related accidents. Of this number, 38 (32 percent) resulted from falls overboard. The actual number of accidents and fatalities is expected to increase slightly for 1984 when the data is complete, but the rates are not expected to change significantly.

CHART 42.

WATERBORNE ACCIDENTS BY MONTH, 1984-1985



NOTE: More than one vessel may be involved in a marine accident.
Data for 1984 and 1985 are incomplete.

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

CHART 44.

WATERBORNE FATALITIES RESULTING FROM VESSEL CASUALTIES*, 1984 - 1985

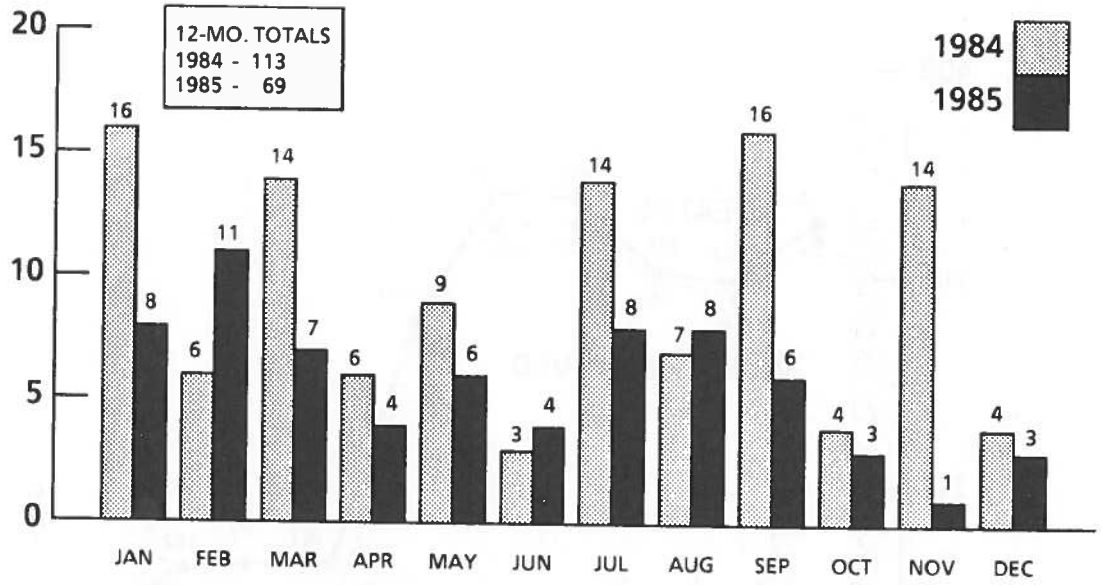
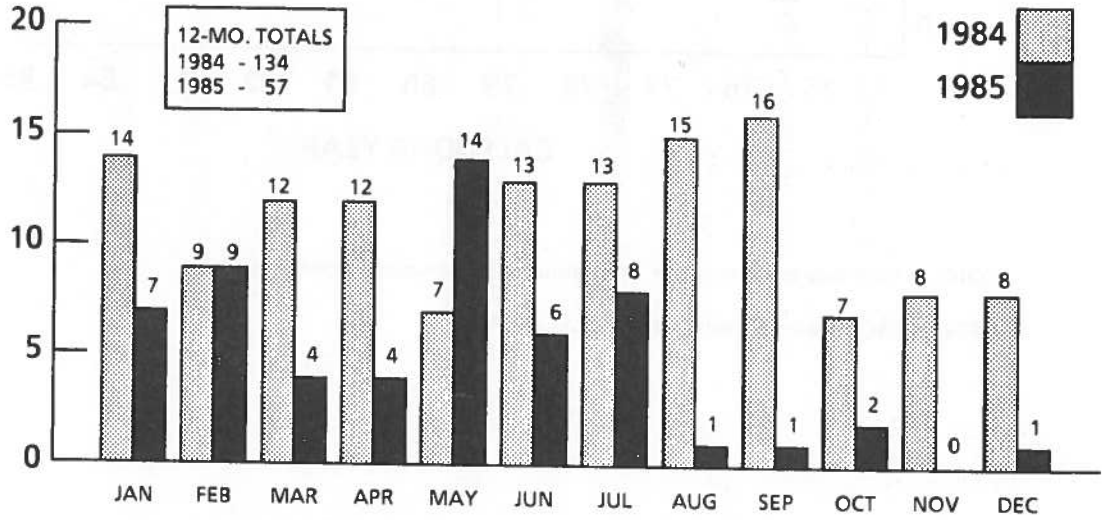


CHART 45.

WATERBORNE INJURIES RESULTING FROM VESSEL CASUALTIES*, 1984 - 1985



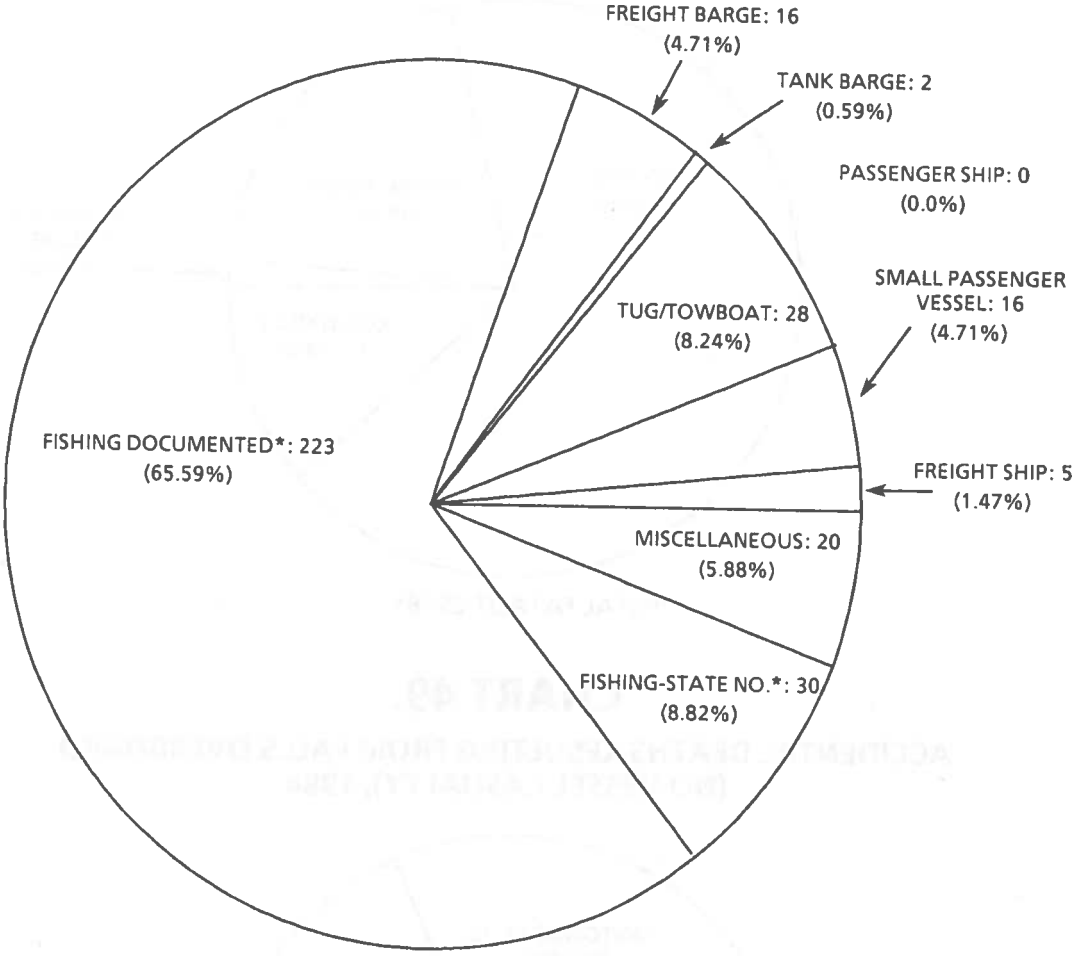
* Includes foreign vessels having casualties in U.S. navigable waters.

NOTE: Data for 1984 and 1985 are incomplete.

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

CHART 47.

U.S. VESSELS TOTALLY LOST IN 1984



TOTAL VESSELS LOST: 340

* 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: 1985 data will be provided as soon as available.

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

Data supplied as of 4/17/86.

Fishing Vessel Safety Initiative

The Coast Guard has identified the commercial fishing industry as having the poorest safety record of all U.S. industries. In 1985, as a part of a two-phase voluntary program, the Coast Guard issued five Navigation and Vessel Inspection Circulars which covered topics on stability; radio and shipboard navigation equipment; fire safety measures; lifesaving equipment; and hull, machinery and electrical installations to provide voluntary standards for fishing vessel designers, builders and outfitters.

SOURCE: USCG, Marine Safety Evaluation Branch, G-MMI-3.

Sprinklers, Less Flammable Furnishings in Passenger Vessel Cabins Recommended

The National Transportation Safety Board urged the Coast Guard to seek international agreement that sprinkler systems be required in the passenger and crew accommodation sections of all passenger ships, regardless of the extent of their fireproof construction.

The Safety Board also called for modification of international fire standards for passenger vessels that would reduce the flammability and smoke generating characteristics of cabin furnishings and structural materials such as paneling.

The Safety Board made its recommendations in reporting on the fire loss of the $16 million Bahamian cruise ship SCANDINAVIAN SEA at Port Canaveral, Florida, on March 9, 1984.

Investigation showed that an installed sprinkler system "would have extinguished the fire in its early stages," the Board reported. Such systems are not now required in living quarters of passenger vessels built with fireproof materials.

The Board also found that "lack of coordination and the absence of a port contingency plan caused an unnecessary delay in the firefighting operation" after the ship returned to the cruise terminal at Port Canaveral. Shoreside firefighters, lacking training in shipboard firefighting, then contributed to the flareup of the fire by ventilating spaces where the fire still was burning, the Board said.

In all, the Safety Board made 13 safety recommendations to the Coast Guard, the Canaveral Port Authority and Scandinavian World Cruises, the ship operator. The recommendations seek better passenger ship fireworthiness and improved marine firefighting, both afloat and in port.

SOURCE: NTSB News Digest, Vol. 4, No. 4.

Study of Wind Speeds Coast Guard Uses in Stability Rules Urged

The National Transportation Safety Board called on the U.S. Coast Guard to study whether the wind speeds it uses in calculating passenger vessel stability requirements are exceeded easily in actual thunderstorms -- particularly in protected or partially protected waters.

The Safety Board also recommended that states apply Coast Guard stability criteria to recreational vessels with two or more passenger decks above the waterline that are not federally regulated.

The Board made its recommendation in reporting on the capsizing of the uninspected 92-foot, stern-paddle-wheel vessel SCITANIC in a severe thunderstorm on the Tennessee River near Huntsville,

As a result, the Safety Board urged the Coast Guard to conduct a life-preserver survey during reinspection of small passenger vessels and to insure that life preservers are distributed widely enough to provide individual passengers on deck easy access in an emergency.

The Coast Guard was also urged to amend federal regulations to require that the primary lifesaving equipment carried on small passenger vessels be adequate to safely support in the water 100 percent of those who boarded pending the arrival of rescue assistance. Under the federal regulation in effect for its excursion trip that day, the Board said, the FANTASY ISLANDER was required to carry sufficient lifeboats or buoyant apparatus for not less than 30 percent of all persons on board.

The probable cause of the fire, was the ignition of residual fuel in a deteriorated section of the exhaust system which ignited the bordering wooden vessel's structure. Several additional safety recommendations to the Coast Guard were directed at exhaust system inspection and fire-fighting equipment requirements.

The mate who issued the call for help did not send a proper distress broadcast that resulted in both a diminished sense of urgency and a loss of valuable time in obtaining assistance. The Board recommended that the Coast Guard require small passenger vessels to keep a placard with the distress-message procedure near the radio transmitter. It also urged that the Coast Guard verify that vessel operators are familiar with radio distress procedures to be used in an emergency.

SOURCE: NTSB News Digest, Vol. 4, No. 9.

SAFETY PROGRAM HIGHLIGHTS

Examination of Foreign Vessels

During 1984, fires on board two foreign passenger vessels, SCANDANAVIAN SEA and SCANDANAVIAN SUN, caused the evaluation of the examination program for foreign passenger vessels. It was concluded that an examination program is still needed, both for vessels built before Safety of Life at Sea Convention (SOLAS) 74 came into force and new vessels under SOLAS 74. In 1985, the Coast Guard instituted an examination program which calls for initial port call, annual, and quarterly examinations.

SOURCE: USCG, Merchant Vessel Inspection Branch, G-MVI-1.

Marine Safety Reporting Program

The United States Coast Guard is America's primary marine safety agency. The Coast Guard continually cooperates with federal and state agencies and with the marine community in identifying and resolving the causes of marine accidents with the constant goal of casualty prevention. The Coast Guard is able to utilize its inspection and investigation resources and its casualty data bases to help accomplish this task.

On June 1, 1985, the Marine Safety Reporting Program (MSRP) commenced. The MSRP is a DOT sponsored, demonstration project involving the navigation and control of commercial vessels in which mariners can voluntarily and anonymously report problems, incidents or hazards regarding marine safety. To encourage mariner participation, the Coast Guard has agreed , for one time only, not to seek to impose a civil penalty or to take action against a mariner's license or document in certain cases when the individual has reported to MSRP. The reports will be screened by the Transportation Systems Center for criminal activity and sent to Battelle Laboratories where the identification part of

RECREATIONAL BOATING

- During 1985, the number of recreational boating fatalities and the fatality rate per 100,000 estimated boats increased when compared with 1984. The number of fatalities rose from 1,063 in 1984 to 1,116 in 1985, which represents a 5 percent increase. A record low had been set in 1984. The fatality rate per 100,000 estimated boats increased from 6.8 during 1984 to 6.9 during 1985.

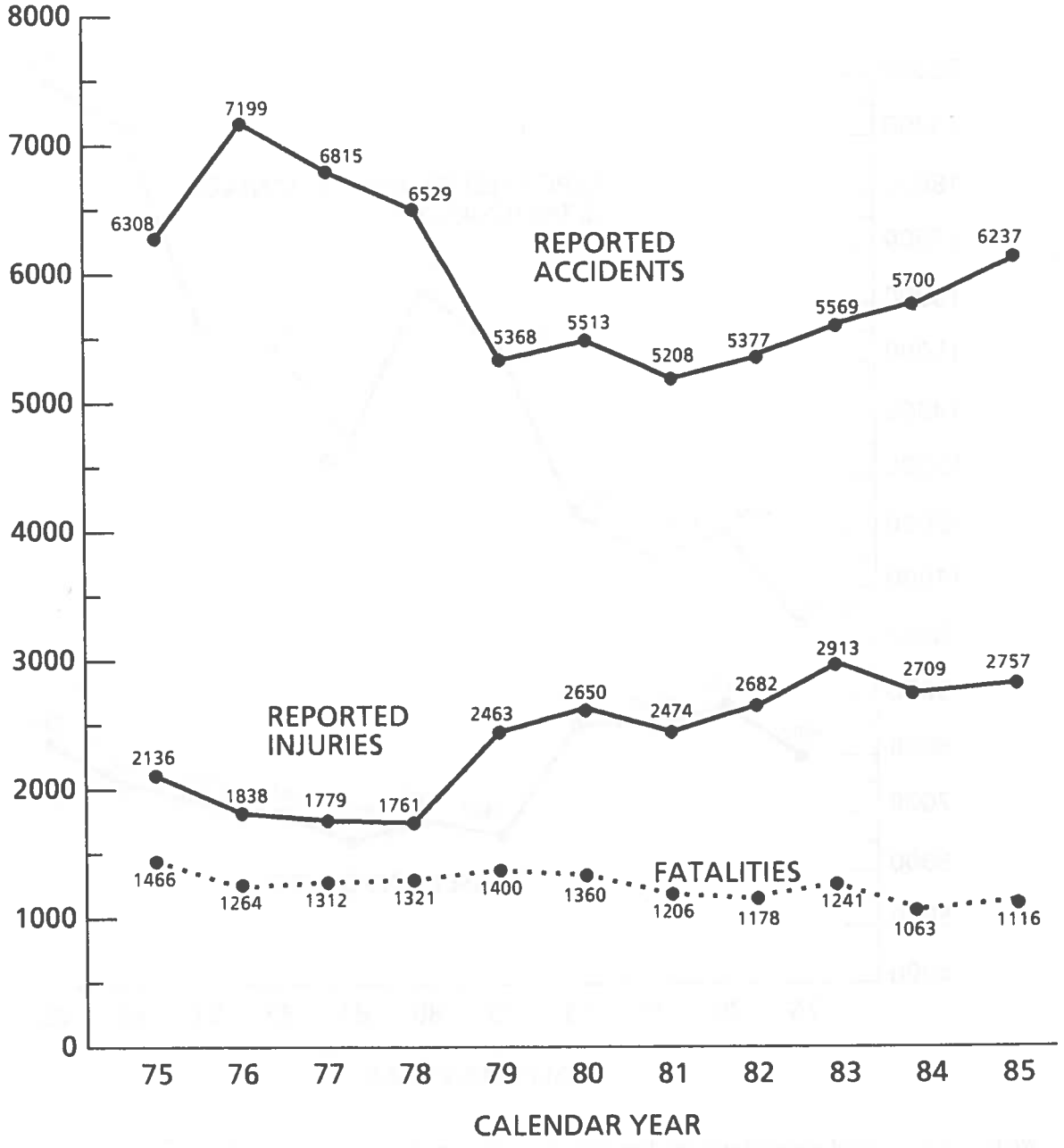
- The number of reported injuries rose 1.8 percent in 1985, from 2,709 in 1984 to 2,757. In 1983, a record high number of injuries (2,913) had been reported.

- Non-fatal, non-injury accidents reports in 1984 increased 12.3 percent, resulting in a record amount of property damage being reported ($20,039,100) for the second year in a row.

- In the fourth quarter of 1985, the number of recreational boating fatalities increased slightly over the same period of 1984. There were 134 fatalities in 1984 and 139 in 1985. During the same periods, the recreational boating accidents and injuries both experienced a decrease. Reported accidents fell from 519 in the fourth quarter of 1984 to 488 in the corresponding period of 1985, while fourth quarter injuries declined from 194 in 1984 to 176 in 1985.

CHART 51.

RECREATIONAL BOATING FATALITIES, INJURIES, AND ACCIDENTS, 1975 - 1985



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.

CHART 53.

RECREATIONAL BOATING FATALITIES, 1984-1985

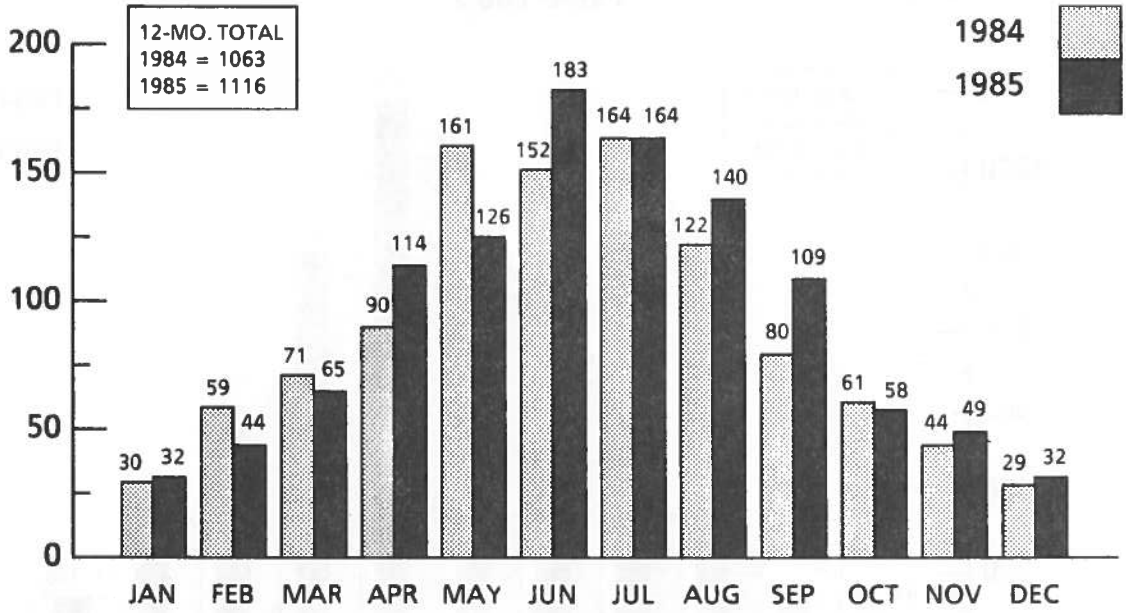
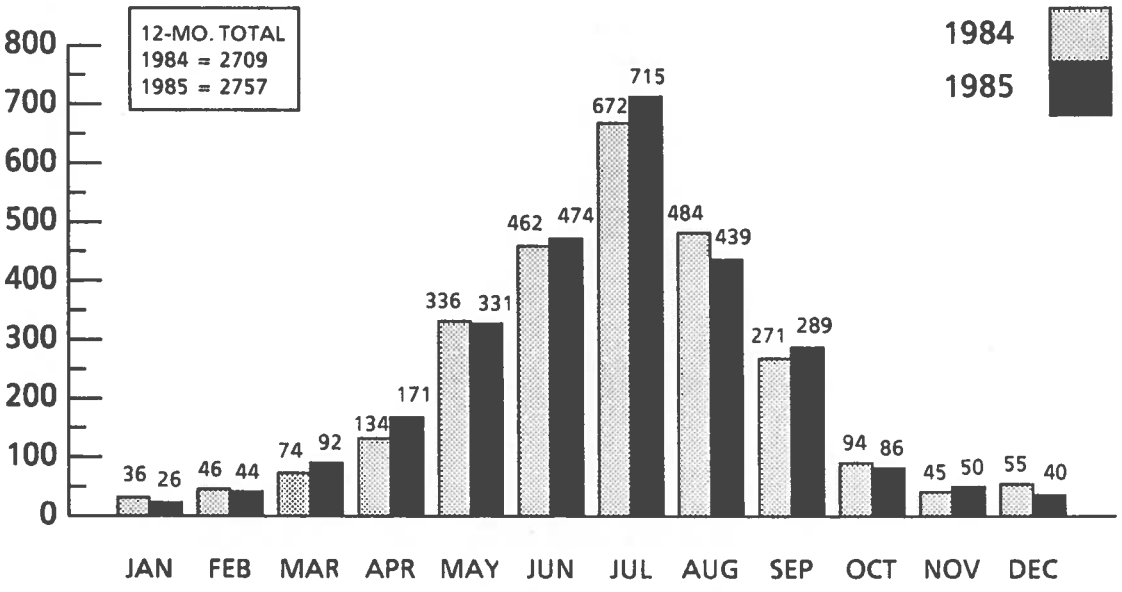


CHART 54.

RECREATIONAL BOATING INJURIES, 1984 - 1985



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

MODAL SAFETY HAZARDS

Alcohol and Boating

Once again in 1985 the adverse effects of alcohol and boating are being experienced. A few examples of alcohol-related accidents are cited below.

- A resident of Lake Mead heard a loud noise one evening. When he went outside to investigate, he found that a boat had run aground and had slammed into a wall. A body was discovered aboard the boat and was declared dead by the authorities.

  The accident occurred on a summer evening. The weather was warm and clear, with calm water conditions. The accident investigator ruled that the operator evidently did not know where he was going, and ran aground for about 15 yards before the 16 foot motorboat crashed into a concrete retaining wall killing him on contact. A coroner reported that the victim had a blood alcohol level higher than the 0.10 legal limit for that State.

- A small group had been out for a late evening cruise in a pontoon boat and were heading back towards the dock area when they were hit by a racing boat. The people aboard the racing boat had gone out for a ride after attending a local party. Eyewitnesses said both boats had their lights on, but the racing boat was travelling at a high rate of speed. It hit the pontoon boat broadside and went completely through it killing one of the passengers. The operator of the racing boat was taken to the local hospital for a blood test, which showed that he had a blood alcohol content of .21%. He was charged with operating a boat while under the influence of alcohol.

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

Hypothermia

A local woman was found unconscious aboard a motorboat by the crew of a Coast Guard search helicopter. She was taken to the hospital and treated for hypothermia. She had been cruising with her son when the boat ran out of gas. The tide and currents began to take the boat out to sea, so they attempted to swim to shore. The currents overpowered them and the child lost consciousness apparently from the hypothermia. The mother held onto the child and reached the boat, but she was unable to hold him and he drowned. They were not wearing any personal flotation devices.

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

Carbon Monoxide Poisoning

Jim took his two children and their friends out for a fun outing in his 20-foot watercraft. There was a special platform extending over the rear of the boat where the children liked to sit and drag their feet in the water as the boat travelled at a slow speed. When Jim noticed that the children had stopped shouting and laughing, he stopped the boat to check on them and began to pull them off the platform into the boat. Before he could bring in all of the children off the platform, one of the boys suddenly slipped into the water. Jim jumped into the water and retrieved the boy. All the children were dizzy, but the boy pulled in from the water required mouth-to-mouth resuscitation. They were taken ashore and were treated at a nearby hospital for carbon monoxide poisoning, which was caused by inhalation of the exhaust fumes. Fortunately they all recuperated. All of the children had also been wearing personal flotation devices at the time of the accident.

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

enforcement activities, marine casualty reporting and vessel numbering systems, and a cooperative boating safety assistance program with the Coast Guard. Fifty-five of fifty-seven states and U.S. terrorities and possessions are participating in the assistance program.

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

Federal Boating Safety Financial Assistance Program For National Nonprofit Public Service Organizations

Section 13103(c) of Title 46, United States Code, provides that up to 5 percent of the funds made available in a fiscal year for allocation from the Boat Safety Account for State boating safety support may be used to fund boating safety projects by eligible national nonprofit public service organizations. Organizations receive one-time grants, the amount of funding being determined by the needs of the Coast Guard, budget limitations and negotiations between the Coast Guard and the potential grantee. Twelve organizations received $650,000 for sixteen projects in fiscal year 1985. Approximately $717,750 is available for fiscal year 1986 funding.

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

Coast Guard Auxiliary

The Coast Guard Auxiliary, the civilian volunteer arm of the U.S. Coast Guard, is a strong force for recreational boating safety. Its many programs are aimed at boater education and accident prevention.

The Auxiliary Courtesy Marine Examination (CME), a check of a pleasure boat's safety-related equipment, is free for the asking. Any deficiencies found are reported only to the boat owner and not to any law enforcement authority.

The Auxiliary Pamphlet 204 has been updated to assist the boater in preparing for the CME. The new pamphlet, which may be handed out to the boater at public education classes and boat shows, establishes a point of contact when ready for the examination and acts as the check-off form to be retained on the boat. This new procedure concentrates on the educational aspects of the CME while still providing a means for signing off and recording the decal number if issued.

In 1985, over a quarter of a million CME's were given by the Auxiliary. The Auxiliary also enrolled 332,500 persons in boating safety classes, conducted 30,600 safety and regatta patrols, assisted over 33,600 boaters in distress, and saved 428 lives.

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

Boating Safety Hotline

A new toll-free telephone service, called the Boating Safety Hotline, has been set up on an experimental basis by the Coast Guard to help boaters get information on boat recalls and other safety matters.

The Hotline is designed to do three things: (1) Tell boat owners and buyers whether or not a particular boat model has been involved in a safety recall (in some recalls, manufacturers are only able to notify 20-30 percent of current owners); (2) take reports from owners concerning safety problems they are experiencing in their boats and determine if a safety recall is warranted; and (3) answer questions on boating safety matters.

New reports continue to suggest that the use of alcohol in fuel will become more prevalent. In a partial response to the problem, many States are requiring labeling on gas pumps dispensing alcohol-gasoline blends.

All owners of inboard, inboard-outdrive and jet drive gasoline powered boats are urged to inspect their fuel hoses frequently. Below are some recommendations on finding replacement fuel hose. Owners who are unable to find hose meeting the recommended specifications are urged to try to find fuel which does not contain alcohol.

The exemption shown on page 7 of the BSC (#63, March 1986), allows manufacturers of new boats subject to the Coast Guard Fuel System Standard to use a type of fuel hose that offers increased resistance to alcohol permeation. Hose meeting Society of Automotive Engineers (SAE) Standard J1527DEC85 establishes a permeation rate for fuel distribution lines which is one-sixth of that specified for hose meeting the existing Federal requirement (SAE J30). SAE Standard J1527DEC85 also establishes a permeation rate for fuel fill and tank vent hoses which is one-half of that specified for hose meeting SAE J30. The permeation rate for these hoses is less stringent because normally they do not hold fuel for more than a few minutes.

Owners of boats with gasoline powered inboard, inboard-outdrive and jet drive engines should inspect their boats' fuel hoses regularly, especially hoses near the engine where engine heat can accelerate deterioration. Look for hoses that are dry and cracked or soft and mushy. A hose that has failed should be replaced immediately, preferably with hose meeting SAE Standard J1527DEC85. If hose meeting the new standard is not available, use any hose marked "USCG Type A." (Source: USCG Boating Safety Circular 63, March 1986, p.6). Address inquires to Commandant (G-BP), U.S. Coast Guard, Washington, DC 20593.

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

MATERIALS TRANSPORT

PIPELINES

- Fourth quarter and twelve-month 1984 and 1985 gas pipeline incidents cannot be compared because of changes in reporting requirements. Effective July 1, 1984, the property loss or damage threshold was increased from $5,000 to $50,000, which resulted in a significant decrease in reported gas pipeline incidents. (Refer to the Glossary for complete definitions of pipeline fatalities, injuries and incidents.) No changes were made to the liquid pipeline reporting requirements.

- In the fourth quarter of 1985, liquid pipeline leaks/failures increased over the fourth quarter of 1984. However, year-end data show a slight decrease in leaks/failures when 1984 and 1985 are compared. There were 37 leaks/failures reported in the fourth quarter of 1984, 51 in the same period of 1985; while a total of 183 leaks/failures were reported in 1985 versus 188 in 1984.

- Fatalities resulting from incidents involving the transport of natural gas increased from 10 during the fourth quarter of 1984 to 11 during the fourth quarter of 1985. No liquid pipeline fatalities were reported in the same periods of 1984 and 1985. The number of natural gas pipeline fatalities declined from 35 in 1984 to 28 in 1985, while liquid pipeline fatalities rose from zero in 1984 to five in 1985.

- Injuries resulting from gas pipeline incidents decreased in the fourth quarter of 1985 and for the entire year. During the fourth quarter of 1985, 30 injuries were reported compared with 70 during the same 1984 period, while there were 121 injuries in 1985 versus 229 in 1984. Liquid pipeline injuries experienced an increase in the fourth quarter of 1985 over 1984. There were three injuries in 1985 compared to one in 1984. However, when total 1984 and 1985 statistics are compared, liquid pipeline injuries decreased from 19 to 17.

HAZARDOUS MATERIALS

- Hazardous materials fatalities increased slightly both during the fourth quarter and for the entire year of 1985. No fatalities were reported in the fourth quarter of 1984 and only seven for the entire year. In 1985, there were two fatalities in the fourth quarter and eight for the year.

- In the fourth quarter of 1985, the number of incidents involving the transport of hazardous materials declined when compared with the same period of 1984. There were 1,113 incidents reported in the fourth quarter of 1985 and 1,253 in the corresponding 1984 period. However, when the entire year 1985 is compared with 1984, hazardous materials incidents increased from 5,776 in 1984 to 5,984 in 1985.

- Major injuries resulting from hazardous materials incidents fell from six in the fourth quarter of 1984 to five in the fourth quarter of 1985 and minor injuries increased from 51 to 56 in the same time periods. However, both major and minor injuries declined in 1985 when compared to 1984. The year-end totals were: 19 major injuries in 1985 versus 23 in 1984 and 231 minor injuries in 1985 versus 234 in 1984.

TABLE 16.

PIPELINE FATALITIES FOR 1985 COMPARED WITH 1984

	JANUARY		FEBRUARY		MARCH	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
GAS PIPELINE*	6	2	4	3	1	0
LIQUID PIPELINE	0	0	0	0	0	0
TOTAL	6	2	4	3	1	0

	APRIL		MAY		JUNE	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
GAS PIPELINE*	2	6	0	0	0	0
LIQUID PIPELINE	0	1	0	0	0	0
TOTAL	2	7	0	0	0	0

	JULY		AUGUST		SEPTEMBER	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
GAS PIPELINE*	5	4	2	2	5	0
LIQUID PIPELINE	0	1	0	3	0	0
TOTAL	5	5	2	5	5	0

	OCTOBER		NOVEMBER		DECEMBER	
CLASSIFICATION	1984	1985	1984	1985	1984	1985
GAS PIPELINE*	0	0	7	3	3	8
LIQUID PIPELINE	0	0	0	0	0	0
TOTAL	0	0	7	3	3	8

	FOURTH QUARTER			12-MONTH TOTAL		
CLASSIFICATION	1984	1985	% Chg	1984	1985	% Chg
GAS PIPELINE*	10	11	+10.0	35	28	-20.0
LIQUID PIPELINE	0	0	0.0	0	5	[1]
TOTAL	10	11	+10.0	35	33	-5.7

NOTE: 1985 data are preliminary. Data supplied as of 04/01/86.
[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.

CHART 60.

LIQUID PIPELINE FATALITIES, 1984-1985

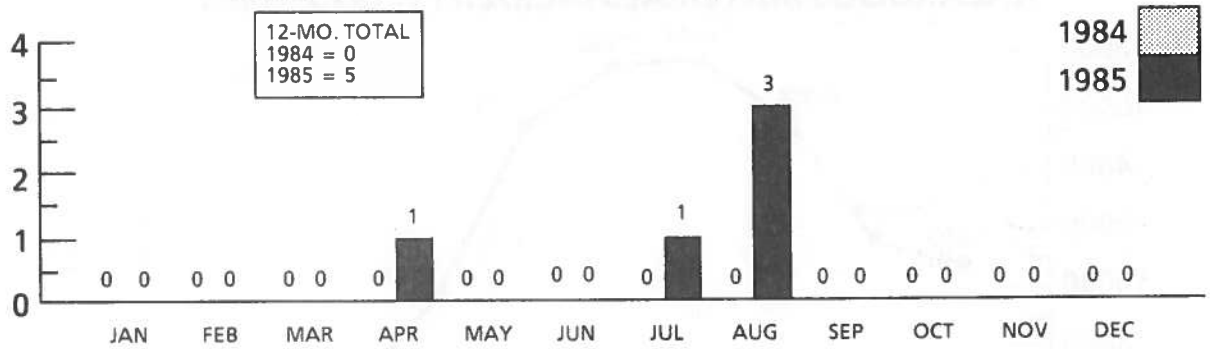


CHART 61.

LIQUID PIPELINE INJURIES, 1984-1985

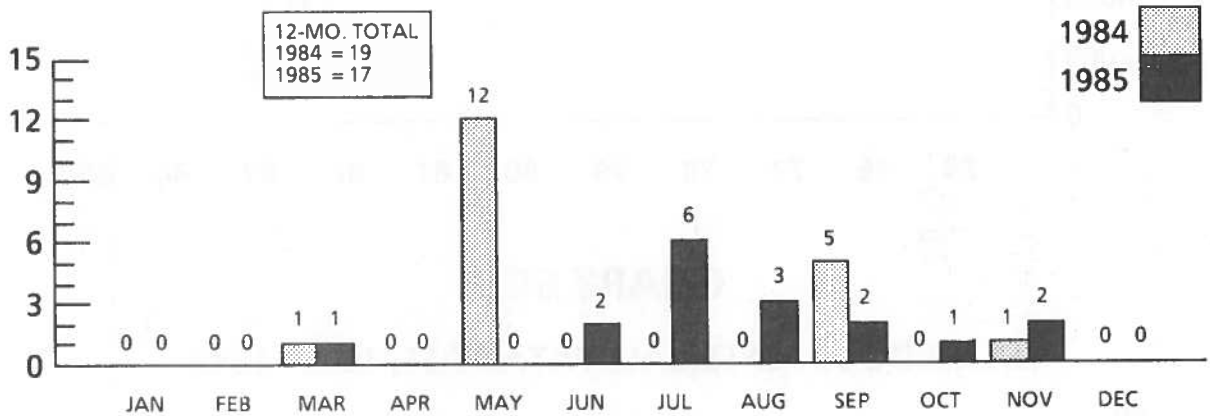
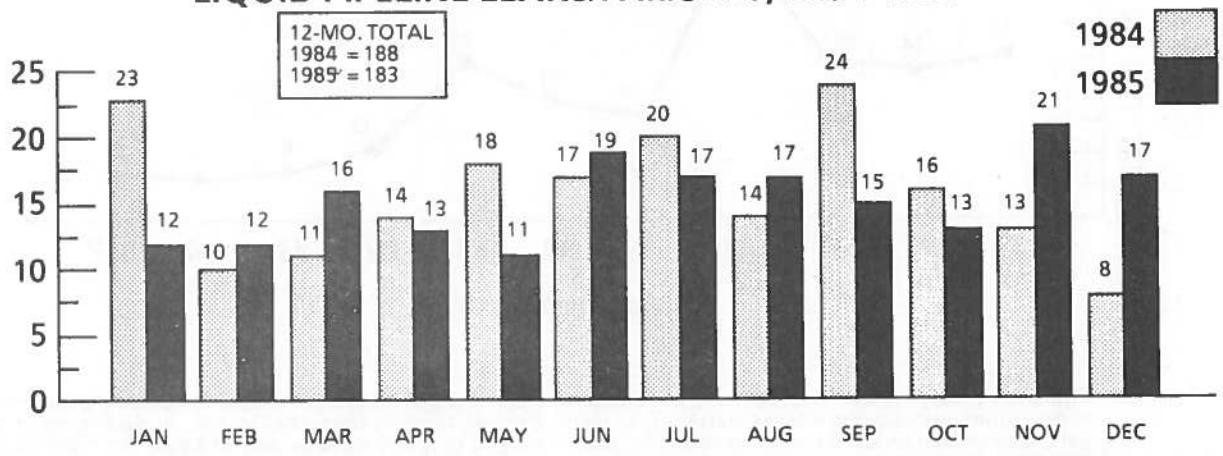


CHART 62.

LIQUID PIPELINE LEAKS/FAILURES, 1984-1985



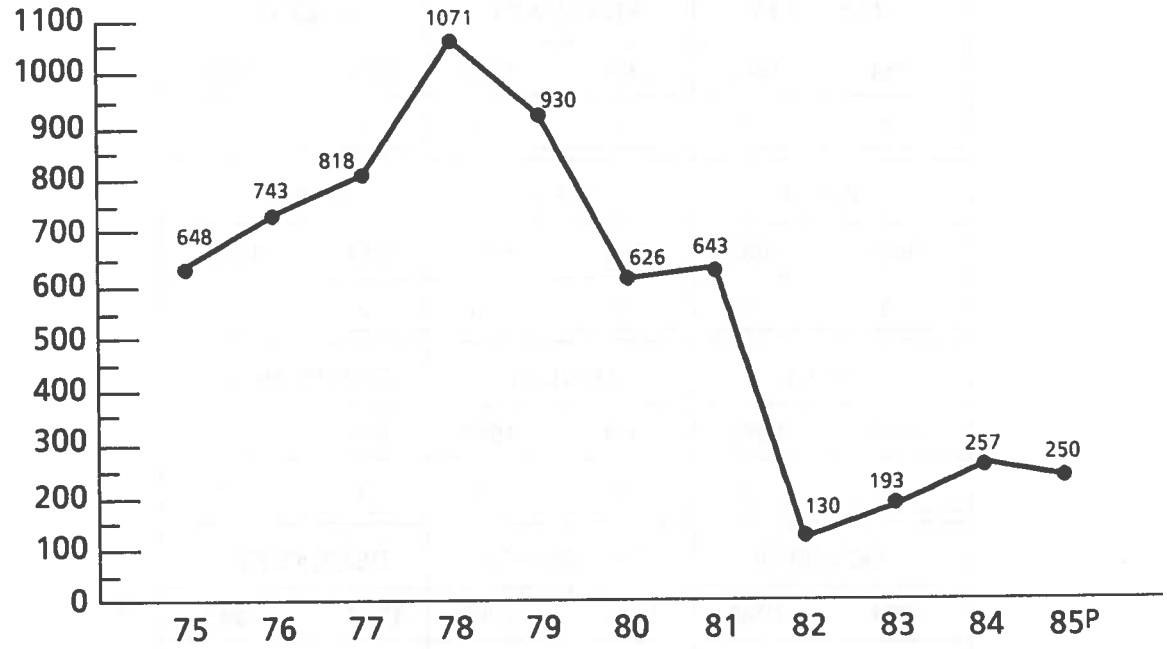
NOTE: 1985 data are preliminary.
Pipeline Incidents are credited to the year in which they occurred, not the year in which the report was received.

Data supplied as of 04/01/86

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

CHART 65.

HAZARDOUS MATERIALS INJURIES +, 1975 - 1985*



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 02/01/86.
Hazardous Materials incidents are reported in the year in which they occurred.

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

CHART 67A.

HAZARDOUS MATERIALS MAJOR INJURIES*, 1984-1985

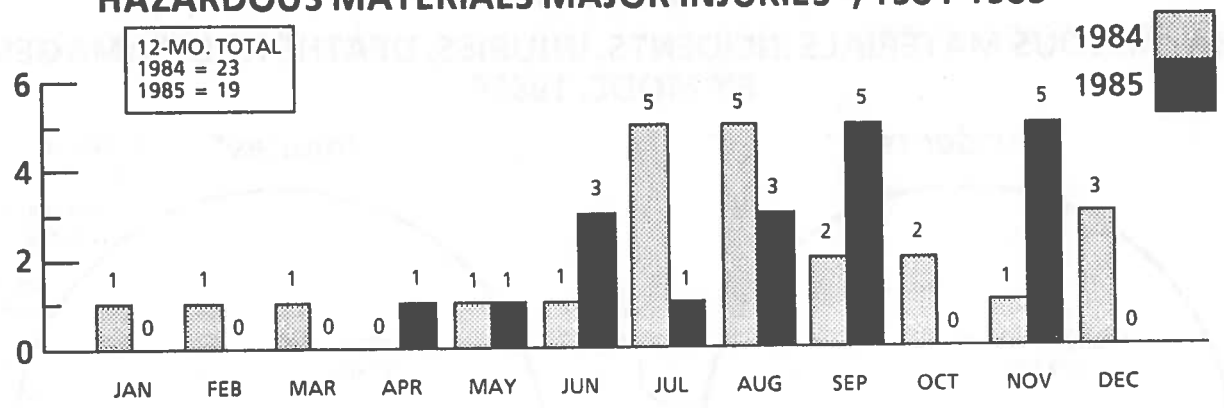


CHART 67B.

HAZARDOUS MATERIALS MINOR INJURIES*, 1984-1985

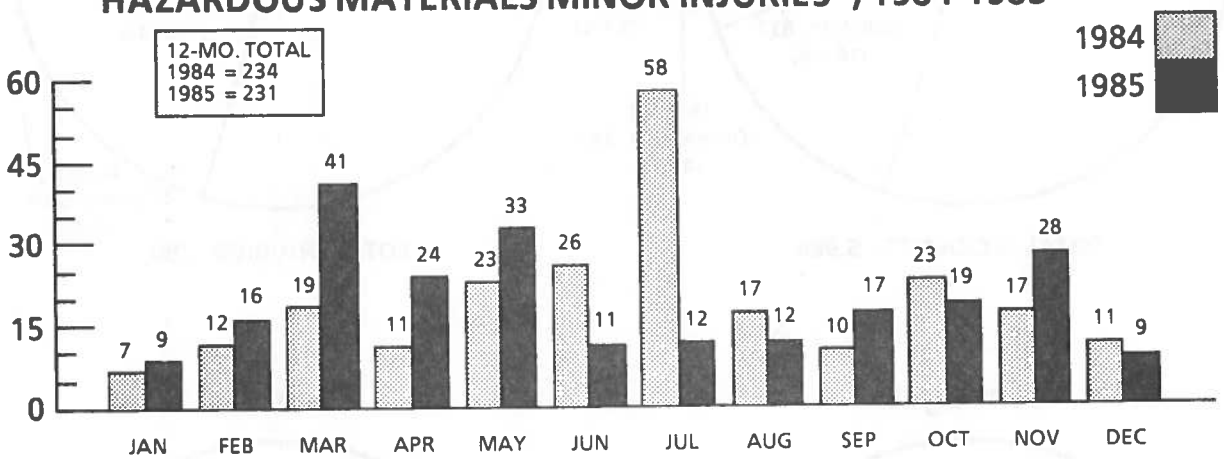
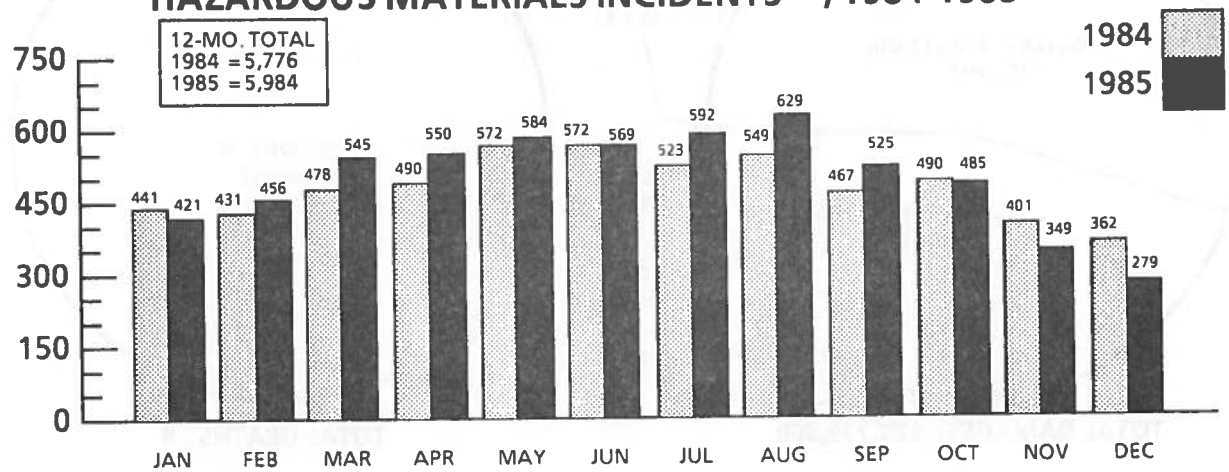


CHART 68.

HAZARDOUS MATERIALS INCIDENTS**, 1984-1985



* See Glossary for definition.

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

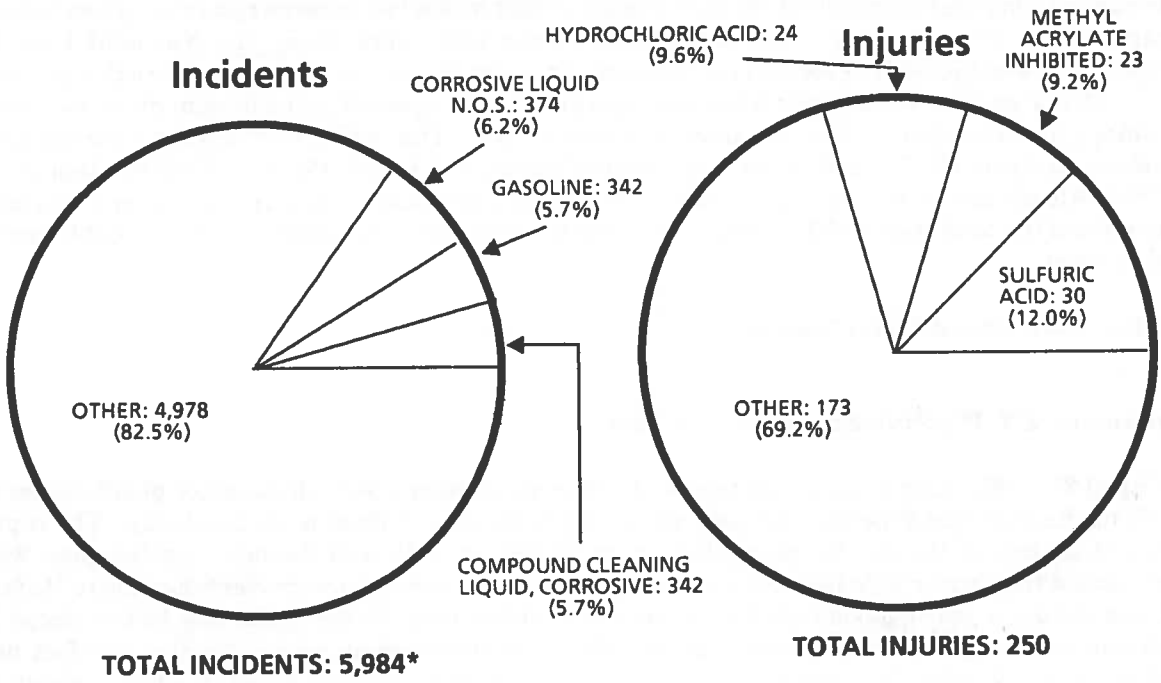
Data supplied as of 02/01/86

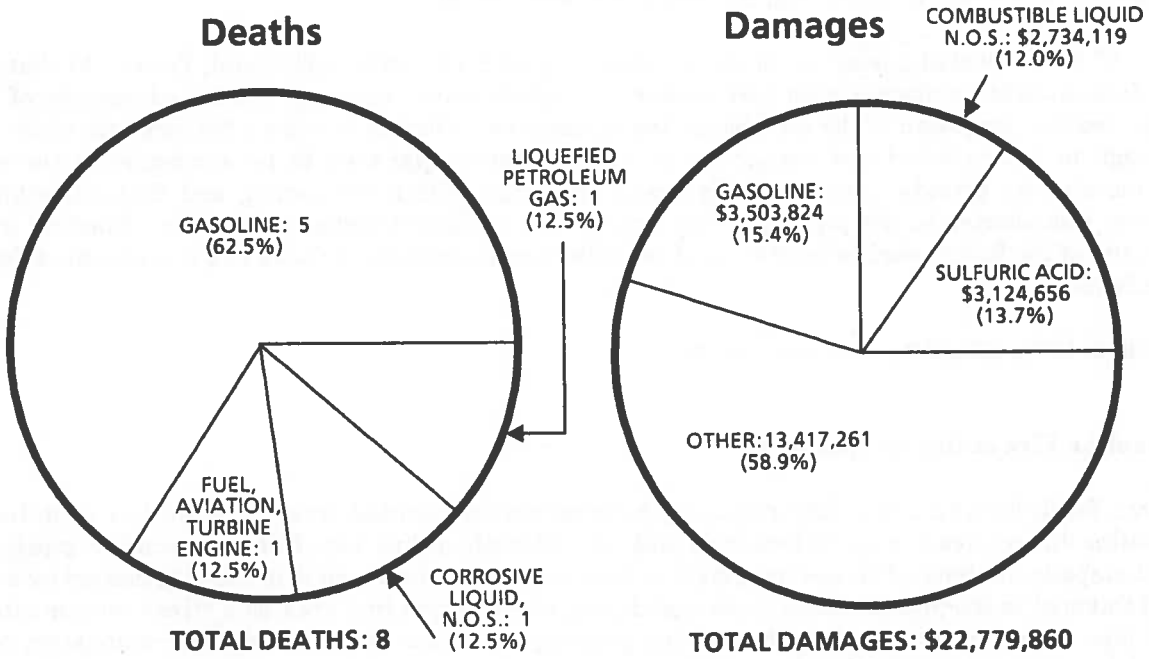
NOTE: 1985 data are preliminary.

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

CHART 70.

HAZARDOUS MATERIALS INCIDENTS, INJURIES, DEATHS, AND DAMAGES BY COMMODITY, 1985P





* 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 02/01/86

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

Marathon to assist in the cleanup operations for which they were untrained were killed and three others were injured, one requiring hospitalization.

SOURCE: RSPA, Office of Pipeline Safety, DPS-20.

Natural Gas Explosion and Fire at North Philadelphia, PA

Three fatalities and one injury requiring hospitalization resulted from a natural gas explosion and the ensuing fire in North Philadelphia, Pennsylvania, on November 8, 1985. A low pressure, 6-inch cast iron gas main installed by the Philadelphia Gas Works in 1900 circumferentially broke, apparently as the result of the washout of supporting earth caused by water leaking from a water service line and sewer lines in the vicinity. Despite its age, the gas pipe appeared generally to be in good shape. The gas escaping from the break migrated horizontally into the basements of a group of row houses and was ignited by an unknown source. Four dwelling units were completely destroyed and two others were extensively damaged.

SOURCE: RSPA, Office of Pipeline Safety, DPS-20.

Restaurant Explosion at Derby, CT

A broken 3-inch cast iron Connecticut Light and Power Company main installed in 1898 was the source of natural gas that exploded in a restaurant in Derby, Connecticut, on December 6, 1985. The incident resulted in the death of six persons. Preliminary investigation indicates that the main was damaged during sewer construction work when power tamping equipment was used during backfilling of the excavation. The incident is under investigation by the NTSB and the Connecticut Department of Public Utility Control.

SOURCE: RSPA, Office of Pipeline Safety, DPS-20.

SAFETY PROGRAM HIGHLIGHTS

Federal/State Cooperative Program

Fifty jurisdictions participated in the gas pipeline safety program. Forty-seven were certified under Section 5(a) of the Natural Gas Pipeline Safety Act, three entered into agreements with the Department under section 59(b), and 48 shared in the $4.5 million grant-in-aid funds appropriated in 1985. Two jurisdictions participated in the intrastate hazardous liquid pipeline safety program and were certified under section 205(a) of the Hazardous Liquid Pipeline Safety Act. There were no grant-in-aid funds appropriated for the hazardous liquid pipeline program in 1985.

SOURCE: RSPA, Office of Pipeline Safety, DPS-20.

Inspection, Enforcement, and Failures

During 1985, Office of Pipeline Safety regional staff and State agency staff spent 21,741 person-days inspecting 3,998 gas pipeline operators and 85 hazardous liquid pipeline operators. Their efforts resulted in the identification of 16,018 state noncompliances, 3,912 state and 154 federal gas and liquid enforcement actions, and two hazardous facility orders. A total of $71,950 state and $12,000

MAJOR DOT SAFETY REGULATIONS

OCTOBER 1, 1985 - DECEMBER 31, 1985

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

46 CFR Part 10 -- Licensing of Pilots; Annual Physical Examination

This rule amends the Final Rule (50 FR 26106) published on June 24, 1985 and the correction of the effective date (50 FR 30274) published July 25, 1985 regarding § 10.07-9(e) of 46 CFR Subpart 10.07. This amendment will permit first class pilots to take the required physical examination at any time during the calendar year, with the stipulation that the time between each physical examination may not exceed 13 months. This rule provides flexibility in scheduling physical examinations in order to accommodate the employment practices in the merchant marine. Effective date: January 1, 1986. (50 FR 52329, December 23, 1985.)

33 CFR Part 72 -- Notice to Mariners/Light Lists

The Coast Guard is revising the Marine Information regulations in Part 72 of Title 33 by making editorial changes to update certain sections and by increasing the number of Light List volumes published to seven volumes. The current regulations provide for five Light List volumes distinguished by the area covered. The change in the number of Light Lists is being made due to the anticipated increase in size and price of Light List Volumes I and II, covering the Atlantic and Gulf of Mexico coasts. Effective date: December 13, 1985. (50 FR 50903, December 13, 1985.)

46 CFR Part 69 -- Revision of Tonnage Measurement Regulations

This final rule clarifies, consolidates, and reorganizes simplified tonnage measurement regulations. Tonnage measurement is necessary to qualify a vessel for documentation, which provides evidence of nationality and qualification for employment in a specified trade, and for regulatory and other purposes. The rule neither changes the present substantive law nor affects any vessel presently documented under the laws of the United States. The revised subpart at 69.01 provides a synopsis of each measurement system, describes when and what vessels are required to be measured, defines the method to appeal adverse measurement decisions, and identifies measurement sources. The new subpart at 69.05 combines two simplified measurement regulations. The rule provides for minor coefficient changes that will have minimal impact on vessel tonnages but may preclude some small pleasure vessels from qualifying for documentation under the simplified method. This rule enables the public to better understand tonnage measurement requirements and provides a uniform simplified measurement system, while preserving the character of the present systems. Effective date: October 1, 1985. (50 FR 40008, October 1, 1985.)

AIRWORTHINESS DIRECTIVES

14 CFR Part 39 -- Lockheed-California Co., Model L-1011 Series Airplanes

This amendment adopts a new airworthiness directive (AD) which requires initial and subsequent periodic inspections for accumulated water in elevator trailing edge panels on certain Lockheed Model L-1011 airplanes. This AD is required because a significant amount of water in the trailing edge of the elevator can create an unbalance, which can cause a flutter instability to occur within the normal flight envelope. This condition, if not corrected, can result in major structural damage to the airplane. Effective date: November 12, 1985. (50 FR 40188, October 2, 1985.)

14 CFR Part 39 -- Saab-Fairchild SF-340A Series Airplanes

On May 31, 1985, the FAA issued telegraphic Airworthiness Directive T85-11-51, effective upon receipt, to all known U.S. operators of Saab-Fairchild Model SF-340A airplanes, which provides initialization procedures to prevent incorrect attitude presentation on the Collins electronic flight instrument system (EFIS) after takeoff. Incorrect attitude indication would be misleading and could be hazardous to flight. This action publishes telegraphic AD T85-11-51. Effective date: October 21, 1985. (50 FR 40189, October 2, 1985.)

14 CFR Part 39 -- Boeing Model 757 Series Airplanes

This action publishes in the Federal Register and makes effective as to all persons an amendment adopting a new airworthiness directive (AD) which was previously made effective as to all known U.S. owners and operators of certain Boeing Model 757 airplanes by individual telegrams. The AD requires revision of the FAA-approved Airplane Flight Manual (AFM) to include additional emergency procedures designed to allow the flight crew to bypass a jammed landing gear selector valve and extend the landing gear. A jammed selector valve may prevent extension of the landing gear and thereby jeopardize safety in landing the airplane. In addition, this amendment requires modification of the selector valve, which, when accomplished, allows removal of the emergency procedure from the AFM. Effective date: November 12, 1985. (50 FR 40802, October 7, 1985.)

14 CFR Part 39 -- Fairchild Models F27 and FH227 Series Airplanes

This amendment adds a new airworthiness directive (AD) applicable to Fairchild Models F27 and FH227 series airplanes, which requires a repetitive inspection and replacement, if necessary, of the rod ends on the rudder control push-pull tubes. This action is prompted by reports of cracks in these rod ends which, if allowed to grow undetected, could cause failure of the rudder control system and potential loss of control of the airplane. This action is necessary to detect cracks and replace cracked rod ends before failure occurs. Effective date: November 14, 1985. (50 FR 40803, October 7, 1985.)

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 that requires a one-time inspection and corrective action, if necessary, for interference between the engine and engine support strut and loose cone bolts at the forward engine support. This action is prompted by the recent discovery, both in pre-delivery and in production, of improperly seated cone bolts at the forward engine mount. Loose cone bolts can fail prematurely due to fatigue and could result in separation of an engine from the airplane. Effective date: October 21, 1985. (50 FR 41129, October 9, 1985.)

14 CFR Part 39 -- Fairchild Aircraft Corporation Models SA226-T, SA226-AT, SA226T(B), SA226-TC, SA227-AC, SA227-AT and SA227-TT Airplanes

This amendment adopts a new airworthiness directive (AD) that requires additional inpections and recalibration of certain components critical to the Stall Avoidance System (SAS) on Fairchild Aircraft Corporation Models SA226-T, AS226-AT, SA-226T(B), SA226-TC, SA227-AC, SA227-AT and SA227-TT airplanes. Instances have occurred involving unwarranted actuation of the SAS control stick pusher mechanism at low altitudes. This AD will assure proper operation of the SAS and the stall warning horn, and thereby preclude loss of airplane control due to an unwarranted actuation of SAS. Effective date: November 22, 1985. (50 FR 42148, October 18, 1985.)

14 CFR Part 39 -- Lockheed-California Company Model L-1011-385 Series Airplanes

This amendment adopts a new airworthiness directive (AD) which requires periodic holding torque checks on the slat asymmetry brakes on Lockheed-California Company Model L-1011-385 series airplanes. This AD is required because a reduction in the restraining torque capacity due to inherent brake degradation may preclude locking the slats in their proper position, which may result in loss of control of the airplane. Effective date: November 24, 1985. (50 FR 42151, October 18, 1985.)

14 CFR Part 39 -- McDonnell Douglas Model DC-10-10, -15, -30, -40, and KC-10A (Military) Series Airplanes, Fuselage Numbers 1 through 388

This amendment adopts a new airworthiness directive (AD) which requires periodic inspections and replacement, as necessary, of both forward and aft engine mount bolts on certain DC-10 airplanes. This action is prompted by a recent report of loose engine mount bolts. This condition, if not corrected, could result in the loss of an engine during flight. Effective date: November 4, 1985. (50 FR 42153, October 18, 1985.)

14 CFR Part 39 -- Boeing Model 737 Series Airplanes

This amendment adds a new airworthiness directive (AD) which requires inspection and repair, as necessary, of the side of body rib upper chord at Body Buttock Line (BBL) 70.85 and Body Station (BS) 663.75 on certain Boeing Model 737 airplanes. This action has been prompted by numerous reports of cracking in this vicinity. Failure to detect cracks in the BBL 70.85 rib upper chord prior to their reaching critical length may result in severe reduction of load carrying capability and possible rapid loss of cabin pressure. Effective date: November 25, 1985. (50 FR 42514, October 21, 1985.)

14 CFR Part 39 -- Lockheed-California Company Model L-1011 Series Airplanes

This amendment adopts a new airworthiness directive (AD) which requires periodic inspections for cracks and replacement, as necessary, of both pitch-system series trim-input bellcranks on Lockheed Model L-1011 series airplanes. This AD is prompted by a report of cracks found in both pitch system series trim-input bellcranks. This AD is necessary because loss of both bellcranks would result in loss of control of the airplane. Effective date: November 12, 1985. (50 FR 42901, October 23, 1985.)

14 CFR Part 39 -- Cessna Model 172RG Airplanes

This amendment adopts a new airworthiness directive (AD), AD 85-20-01, applicable to Cessna Model 172RG airplanes and codifies the corresponding emergency AD letter dated September 27, 1985, into the Federal Register. This AD requires disabling the cabin heat control prior to further flight and inspection of the muffler core. The AD is necessary because the possibility exists that one or more holes may have been inadvertently drilled through the muffler in the area of the muffler shroud assembly end plates. This could allow carbon monoxide to enter the cabin and disable the pilot. Effective date: December 5, 1985. (50 FR 49349, December 2, 1985.)

14 CFR Part 39 -- Boeing Model 757-200 Airplanes

This amendment adds a new airworthiness directive (AD) applicable to certain Boeing Model 757-200 airplanes that requires inspection for proper self-locking torque of certain self-locking nuts, and replacement, if necessary. This action is prompted by detection of several nuts that were found to have insufficient self-locking torque for proper self-locking. This situation, if not corrected, could result in the loss of an affected nut and subsequent loss of retention of the associated flight control equipment. Effective date: December 21, 1985. (50 FR 49832, December 5, 1985.)

14 CFR Part 39 -- McDonnell Douglas Model DC-9 and C-9 (Military) Series Airplanes, Fuselage Numbers 1 through 1165

This amendment adopts a new airworthiness directive (AD) which requires a one-time inspection of all generator power feeder cables on certain McDonnell Douglas Model DC-9 and C-9 (Military) series airplanes, and modification of the generator power feeder cable installation on McDonnell Douglas Model DC-9-81 and DC-9-82 series airplanes. This action is prompted by a report of an auxiliary power unit (APU) generator feeder cable electrically shorting to the airplane structure and causing smoke to enter the cabin area. This AD is necessary to aid in the elimination of a potential ignition source for fire. Effective date: January 10, 1986. (50 FR 49833, December 5, 1985.)

14 CFR Part 39 -- Boeing Model 737-100, -200, and -300 Airplanes

This amendment supersedes an existing airworthiness directive (AD) which requires installation of increased length escape slide pack release cable assemblies. This amendment is needed to correct a condition aggravated by that AD, and to require the installation of increased length escape slide pack release cable assemblies. Effective date: December 20, 1985. (50 FR 49923, December 5, 1985.)

14 CFR Part 39 -- Sikorsky Aircraft Model S-64E Helicopters

This amendment adopts a new airworthiness directive (AD) which requires (1) Repetitive visual inspections of the main rotor torque tube inner bracket assembly for cracks and corrosion; (2) replacement if cracked; and (3) replacement or rework, as necessary, if corroded on Sikorsky Aircraft Model S-64E helicopters. The AD is needed to prevent fatigue cracking in the main rotor head torque tube inner bracket which could lead to failure and possible loss of control of the helicopter. Effective date: December 30, 1985. (50 FR 52438, December 24, 1985.)

FEDERAL RAILROAD ADMINISTRATION

49 CFR Part 219 -- Partial Grant of Petition for Reconsideration; Control of Alcohol and Drug Use in Railroad Operations; Technical Amendments

This notice sets forth technical amendments to the final rule document on Control of Alcohol and Drug Use in Railroad Operations that were prompted by a petition for reconsideration. The amendments are clarifying in nature. Effective date: November 1, 1985. (50 FR 45406, October 31, 1985.)

49 CFR Parts 212, 217, 218, 219, and 255 -- Notice of Suspension; Control of Alcohol and Drug Use in Railroad Operations

The final rule on Control of Alcohol and Drug Use in Railroad Operations, including miscellaneous amendments issued therewith, is suspended pending further notice. Implementation of the final rule has been temporarily restrained by order of the U.S. District Court for the Northern District of California. Effective date: November 1, 1985. (50 FR 45917, November 5, 1985.)

49 CFR Parts 212, 217, 218, 219, and 225 -- Revised Effective Dates; Correction; Control of Alcohol and Drug Use in Railroad Operations

This notice sets forth new effective dates for the final rule on Control of Alcohol and Drug Use in Railroad Operations, including miscellaneous related amendments to FRA safety regulations. The final rule had been suspended in compliance with a temporary restraining order issued by the U.S. District Court for the Northern District of California. The court has now dissolved the restraining order, permitting the regulations to become effective. The notice also corrects a typographical error in the final rule document as published. Effective dates: Part 219, January 6, 1986; Subpart C, February 1, 1986; and Subpart F, April 1, 1986. The final rule amendments to Parts 212, 217, and 225 are effective on January 1, 1986. The editorial amendment to the title of Part 218 is effective on publication in the Federal Register. (50 FR 50888, December 12, 1985.)

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

49 CFR Part 571 -- Federal Motor Vehicle Safety Standards; Anchorages for Child Restraint Systems

To permit the securing of child safety seats, this notice amends Standard No. 210 *Seat Belt Assembly Anchorages*, to require all vehicles with automatic restraint systems at the right front passenger seating position to be equipped with anchorages for a lap belt at that position if the automatic restraint cannot be used to secure a child safety seat. Some automatic belts cannot be used to secure child safety seats since they include only a single, diagonal shoulder belt. The new requirement will enable parents to install a lap belt if they wish to secure a child safety seat in the front right outboard seating position. The amendment also requires vehicle manufacturers to include information in their owner's manuals on child safety and the location of shoulder belt anchorages in the rear seats. The owner's manual must also provide instructions explaining how a lap belt can be installed for use with child safety seats in the front right passenger seating position in vehicles with automatic restraints that cannot be used for securing child restraints. Effective date: September 1, 1987. (50 FR 41356, October 10, 1985.)

49 CFR Parts 172, 173, 176, 177, and 178 -- Editorial Corrections and Clarifications

The purpose of these amendments to the Hazardous Materials Regulations (HMR) is to correct certain editorial errors, and to make minor regulatory changes which will not impose any new requirements on persons subject to the HMR. Effective date: October 30, 1985. (50 FR 41521, October 11, 1985.)

49 CFR Part 1 -- Organization and Delegation of Powers and Duties

Due to the recent reorganization in the Research and Special Programs Administration (RSPA) the Materials Transportation Bureau (MTB) has been abolished. In Appendix A to Part 1 of Title 49 the Administrator had redelegated the authority delegated to her, by the Secretary of Transportation in 49 CFR 1.53, to the MTB. Due to the abolishment of the MTB, the redelegation of authority to that element is a nullity and has been deleted. The reorganization in RSPA will result in the exercise of all of MTB's current functions and responsibilities by separate Offices of Hazardous Materials Transportation and Pipeline Safety, headed by Directors reporting to the Administrator, RSPA. Each of these Offices will have both rulemaking and enforcement functions.

Since this amendment relates to Departmental management, procedures, and practice, notice and comment on it are unnecessary and it may be made effective in fewer than thirty days after publication in the Federal Register. Effective date: November 1, 1985. (50 FR 45728, November 1, 1985.)

49 CFR Parts 106, 107, 171, 172, 173, 174, 175, 176, 177, 178, 190, 191, 192, 193, and 195 -- Hazardous Materials Regulations and Pipeline Safety Regulations; Office and Personnel Designations; Delegation of Authority

The purpose of these amendments to the Hazardous Materials Regulations (HMR) and the Pipeline Safety Regulations (PSR) is to delete all references to the Materials Transportation Bureau (MTB), including the pertinent offices and personnel filling those offices, and to reflect the new offices established under the reorganization of RSPA. Of particular significance are the deletions of all references to the Office of Hazardous Materials Regulation (OHMR) and the Office of Operations and Enforcement (OOE) or (OE). These amendments will not impose any substantive regulatory requirements on persons subject to the HMR or the PSR. Effective date: November 1, 1985. (50 FR 45728, November 1, 1985.)

49 CFR Parts 171, 172, 173, 174, 176, 177 and 179 -- Transportation of Hazardous Materials Between Canada and the United States

The MTB is amending the Department of Transportation's Hazardous Materials Regulations (HMR) in order to permit transportation of hazardous materials, with certain conditions and limitations, in accordance with the recently published Canadian Transport of Dangerous Goods Regulations. This action is necessary in order to facilitate the movement of hazardous materials between Canada and the United States. Effective date: November 1, 1985. (50 FR 41516, October 11, 1985.)

49 CFR Part 173 -- Cylinder Retester Identification Procedures

This final rule amends the requirements for the periodic retesting of cylinders by requiring that cylinders be marked with the cylinder retester's identification number. This action will provide the means to trace the retester of a given cylinder and thereby enhance DOT's ability to provide safety oversight of cylinder retesting. The intended effect of this action is to identify individuals who are

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.

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.)

Gas Transmission - refers to pipelines transporting natural gas, flammable gas or gas which is toxic or corrosive in transmission or gathering operations.

- Injury - refers to an injury involving lost time or other than on site medical treatment.
- Fatality - is a death resulting from the failure or escape of gas.

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;

(2) Injury to a railroad employee that requires medical treatment or results in restriction of work or motion for one or more workdays, one or more lost workdays, termination of employment, transfer to another job, or loss of consciousness; or

Non-Train Incident - is any event arising from the operation of a railroad, but not from the movement of equipment, which results in a reportable death, injury or illness.

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.

* U.S. GOVERNMENT PRINTING OFFICE:1986-601-739 / 30031