ATSB Australian Transport Safety Bureau

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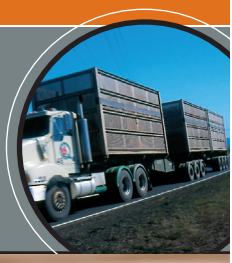
Monograph 8

Articulated Truck Crashes



Fatal crashes involving articulated trucks

The following monograph presents the most recently available national data on fatal crashes, associated fatalities and rates where an articulated truck was involved. Fatalities include truck occupants, motorcyclists, bicyclists, other vehicle occupants and pedestrians.

Key findings

- The number of fatalities and fatal crashes involving articulated trucks peaked in the late 1980s.
- From 1989 to 1991 there was a substantial decrease in the number of crashes and fatalities.
- Since 1997 (to 2000) the number of crashes and fatalities has increased each year.
- The level of activity in the road transport industry, measured by distance travelled and freight carried per kilometre have continued to increase in recent years.
- The fatality rate per distance travelled, while showing improvements in truck safety in the early 1990s, increased between 1999 and 2000.
- The most recent data available indicates that in multi-vehicle crashes, the driver of the articulated truck is generally not the party responsible for the crash.

General trends

The most recent national data on fatal crashes and fatalities involving articulated trucks has shown an increase each year for the last three years (see Tables 1, 2 and Figure 1).

In both New South Wales and Tasmania there was an increase in the number of fatal crashes involving at least one articulated truck between 1999 and 2000. In all other States/Territories the number either decreased or remained constant.

The magnitude of the increase in fatalities from crashes involving articulated trucks in New South Wales from 1999 to 2000 was 31 percent.

Table 1. Fatal crashes by State/Territory involving articulated trucks

	NSW	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*	*Australia*
1981	113	44	47	11	12	4	5	0	236
1982	114	39	53	17	17	5	6	0	251
1983	105	42	29	15	15	7	3	0	216
1984	113	45	34	21	12	4	1	2	232
1985	98	36	36	18	18	8	4	0	218
1986	77	39	37	16	15	8	2	0	194
1987	59	52	36	28	17	4	3	0	199
1988	120	54	47	16	13	5	5	0	260
1989	99	57	45	23	18	4	3	1	250
1990	77	51	31	18	15	10	3	0	205
1991	64	35	23	18	11	4	1	0	156
1992	73	27	34	8	10	1	1	0	154
1993	60	34	38	17	18	3	1	0	171
1994	52	36	34	14	13	1	1	0	151
1995	49	31	47	17	12	4	4	1	165
1996	48	33	34	19	23	2	1	1	161
1997	60	26	29	12	13	4	2	0	146
1998	58	30	28	18	12	2	2	1	151
1999	55	35	30	17	20	2	3	1	163
2000	69	32	28	15	12	6	3	0	165

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Table 2. Road fatalities by State/Territory involving articulated trucks

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
1981	145	..	..	13	14	4	7	0	..
1982	137	..	..	18	21	5	8	0	..
1983	127	46	..	22	17	7	4	0	..
1984	144	51	..	24	13	4	1	2	..
1985	114	46	..	22	18	9	4	0	..
1986	96	45	44	17	17	11	2	0	232
1987	75	65	42	32	21	5	3	0	243
1988	151	65	56	19	19	5	5	0	320
1989	143	68	60	31	20	9	3	1	335
1990	94	68	37	26	17	13	8	0	263
1991	78	40	26	22	12	4	1	0	183
1992	84	32	38	14	10	1	2	0	181
1993	69	50	42	18	21	3	1	0	204
1994	67	38	41	15	16	1	1	0	179
1995	63	38	55	19	14	5	4	1	199
1996	56	39	42	25	26	2	2	2	194
1997	71	27	35	18	14	4	2	0	171
1998	71	32	33	24	13	2	2	2	179
1999	64	39	38	21	23	2	3	1	191
2000	84	40	40	19	13	6	6	0	208

.. Data not available

Figure 1. Fatal crashes and fatalities involving articulated trucks in Australia

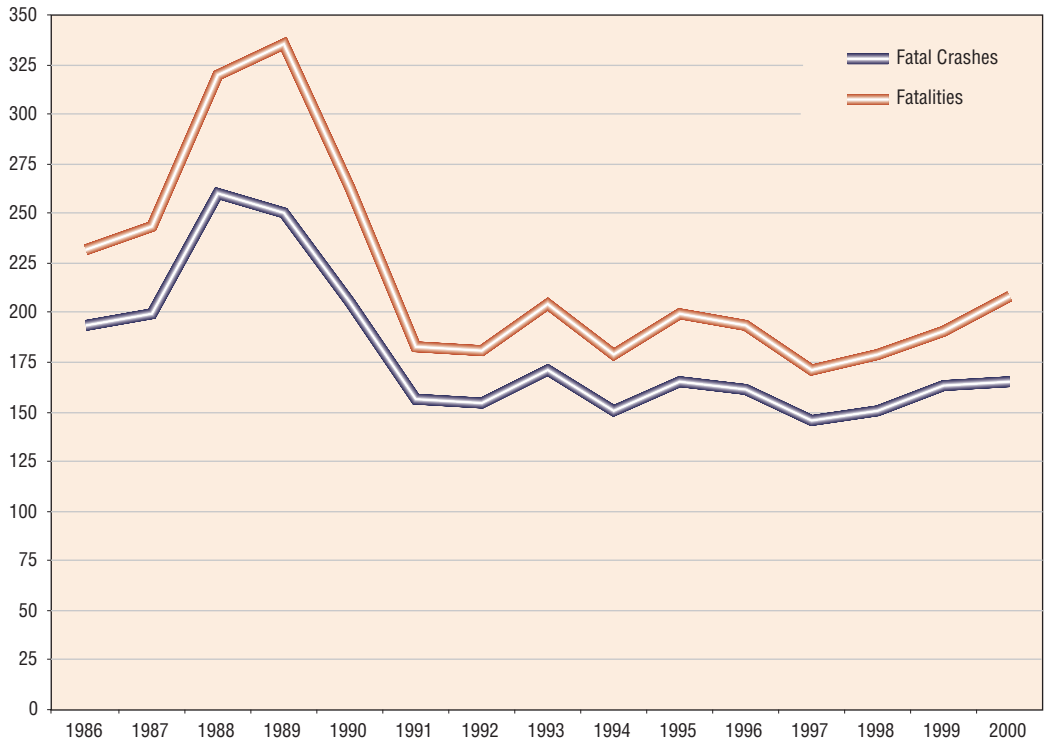

Figure 2. Fatal crashes and fatalities involving articulated trucks compared with all fatal crashes and fatalities

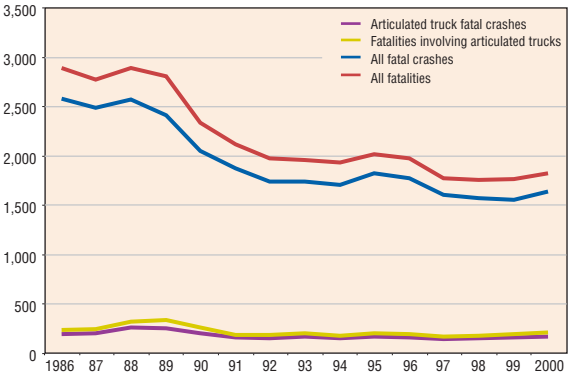

Figure 2 showns that in recent years articulated truck crashes accounted for approximately 10 percent of all fatal crashes and 11 percent of all fatalities.

Level of truck activity

Australia wide the level of trucking activity, measured by billion tonne kilometres, increased by 60 percent between 1989 and 1999 (billion tonne kilometres supplied by Bureau of Transport Economics). While over the same period the number of fatalities involving articulated trucks decreased by 43 percent.

The distance travelled by articulated trucks is measured by the Survey of Motor Vehicle Use and is collected by the Australian Bureau of Statistics. The method of data collection changed in 1997 to improve the accuracy of data and as a result a break in the series occurs between 1995 and 1998. In recent years the distance travelled by articulated trucks increased by 8.3 percent between 1998 and 2000 while the number of articulated trucks registered increased by 1.6 percent between 1998 and 1999. These indicators suggest that currently registered trucks are travelling greater distances and carrying more freight.

Fatality rates

The number of deaths per million kilometres travelled is a method of comparing road fatalities taking into account the level of exposure to crashes. Figure 3 demonstrates that the fatality rate for articulated trucks, when considering the risk of involvement in a fatal crash decreased between 1988 and 1995.

In the later part of the series the Australian rate remained constant between 1998 and 1999 and then increased by 7.5 percent between 1999 and 2000, during which the distance travelled by articulated trucks increased by 1.3 percent.

The fatality rate per registered truck (see Table 3) also increased between 1998 and 1999. Table 3 presents information on the fatality rates for individual States and Territories.

The highest fatality rate per distance travelled for 2000 was observed for the Northern Territory while Victoria had the lowest observed rate (the Australian Capital Territory

Figure 3. Fatalities involving articulated trucks per 100 million kilometres travelled

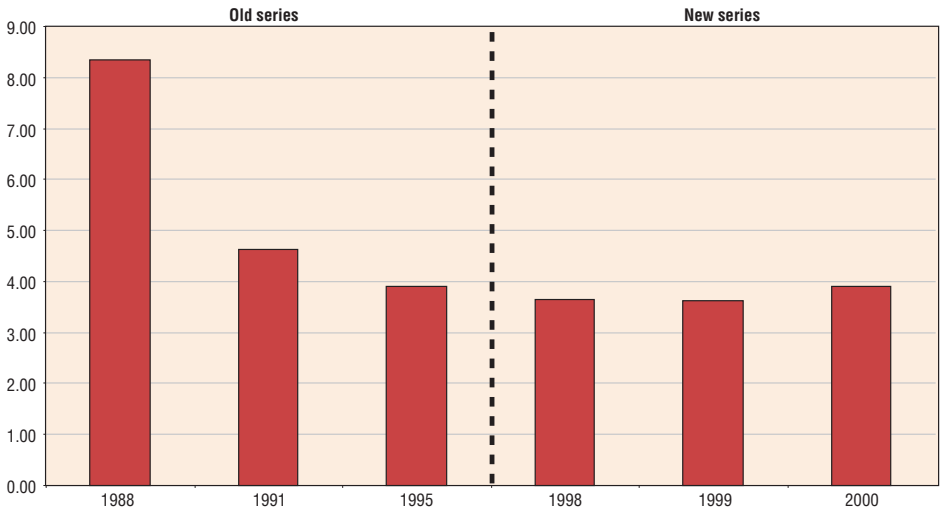

Table 3. Road fatality rates involving articulated trucks by State/Territory

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Per distance travelled [a]									
1998	5.84	2.30	3.23	4.28	2.65	1.59	2.38	6.45	3.64
1999	4.78	2.65	3.31	4.00	4.24	1.85	3.23	3.13	3.63
2000	6.02	2.48	3.79	3.44	2.66	5.08	8.33	0.00	3.90
Per registered vehicle [b]									
1998	42.38	18.47	26.70	40.52	17.76	13.21	24.39	77.82	28.74
1999	39.32	21.52	29.77	35.40	30.11	13.32	36.86	40.65	30.18

[a] *100 million kilometres travelled, ABS Catalogue 9208.0*

[b] *10,000 registered articulated trucks, ABS Catalogue 9309.0*

Table 4. Fatal crashes involving articulated trucks by crash type and speed limit, Australia 2000

	Speed limit (km/h)[a]			
	Up to 60	65-95	100+	Total
Pedestrian crash	6	3	9	18
Other single vehicle crash	2	0	23	25
Other multiple vehicle crash	18	18	86	122
Total	26	21	118	165

[a] *Excludes ACT*

had zero fatalities from articulated truck crashes in 2000). The Australian Capital Territory had the highest number of fatalities per registered truck in 1999, with the lowest rate per registered truck observed for Tasmania.

Crash Characteristics

The majority of fatal crashes involving articulated trucks occur between a truck and another vehicle and take place in non-urban areas. In 2000, 74 percent of fatal crashes involving articulated trucks were multiple vehicle crashes, 15 percent were single vehicle crashes with the remaining 11 percent involving a truck and pedestrian. Seventy percent of these multiple vehicle crashes occurred on roads with speed limits of 100 km/h or above.

Previous analyses undertaken within the Australian Transport Safety Bureau have shown that in the majority of multiple vehicle fatal crashes involving articulated trucks the truck was not considered responsible. In 1997 for 79 percent of multiple vehicle fatal crashes the articulated truck was not responsible for the crash. That is, at some point in the crash sequence the other vehicle violated the right of way of the truck or alternatively no one was considered to be responsible for the collision.

In summary the number of fatal crashes and fatalities resulting from articulated truck crashes has increased in recent years. The fatality rate per distance travelled also increased from 1999 to 2000.

NB: This monograph was produced using the ATSB Monthly Fatality Crash Database. The data is forwarded from State/Territory road authorities or police at the end of each calendar month.