



U.S. Department
Of Transportation

**National Highway
Traffic Safety Administration**



ESTIMATION OF BACKOVER FATALITIES

**Office of Regulatory Analysis and Evaluation
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People Saving People

Introduction

Backover fatalities are a part of the tens of thousands of motor vehicle fatalities that occur every year. NHTSA's mission is to save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity. NHTSA is data driven in an effort to produce objective results. However, the databases we maintain do not produce a census of every motor vehicle related injury and fatality. While the FARS database is a census of motor vehicle crashes, it only catalogues crashes that are related to a public road. If a fatal crash occurs entirely on private property, (e.g., in a driveway, parking lot, on a farm) it will not be included in the FARS, in accordance with the criteria defining FARS cases. Likewise, if a motor vehicle related injury or property damage only crash occurs, several factors may cause the case to not appear in any database. These include the lack of a police report, a lack of insurance involvement, and a lack of documentation regarding medical treatment. In addition, NASS-GES does not include certain cases because they do not fit the definition of a traffic crash. Thus, we not only lack information regarding backover fatalities, but also backover crashes occurring on private property that result in injuries and property damage.

The definition of a "backover" fatality has not been identified in many cases and has not been applied consistently over various analyses issued by NHTSA and others. This has made it hard to compare historical estimates and has now led us to identify the codes used in FARS to define a backover fatality.

Historical Approaches

A 1997 Research Note claimed “an annual average of 475 backover fatalities (85 on-road and 390 off-road) for 1992 and 1993.” This estimate was excluded from the August, 2005 “Preliminary Regulatory Evaluation (PRE) to FMVSS 111, NPRM to Require a Rear Detection System for Single-Unit Trucks” (Docket No. 19239-2) because we “were unable to determine the exact methodology and assumptions used by the original researchers. Thus, while the underlying data set still exists, it was not possible to reproduce and confirm the results presented in that study.” Under our current definition of backover, there were on average 78 fatalities in FARS in 1992 and 1993 (see Table 1), as compared to the 85 on-road estimate.

In 2004, NHTSA produced a Death Certificate Study that examined a variety of non-crash and non-traffic related motor vehicle fatalities during 1998. Backover fatalities were a focus in this report. However, “backover” was not defined. After examining over four thousand death certificates from 35 states and DC, a total of 91 backover deaths were reported. A straight line projection was made based on the number of death certificates identified as candidates nationwide ($\approx 5,500$) and the number of death certificates NHTSA was given permission to examine by the 35 states and DC (4,046). This produced a national estimate of 123 backover fatalities a year. This national estimate was then referenced in the executive summary of that very document and was rounded to 120 backover fatalities a year. If a person was fatally injured in a backover crash and admitted to a hospital, the official cause of death as recorded on the death certificate may not mention a backover maneuver, or even the fact that a motor vehicle was involved in the death. While the death certificate study was intended to be a census of non-crash fatalities, we can safely say that 120 is a lower bound for the number of backover fatalities that actually occurred. In addition, the Death

Certificate Study also provided a ratio of on-road to off-road backover crashes that has been frequently quoted in other NHTSA documents. It was found that 13 (14%) of the 91 fatalities occurred on the roadway, whereas the other 78 (86%) occurred off the roadway.

The PRE for FMVSS 111 contained a now believed to be flawed estimate of the number of backover deaths (330). The PRE's Table III-2 apparently used a different definition of backovers (which were estimated around 1999), and has an irreproducible collection of FARS cases over 1991-1997.

According to the PRE there are 381 supposed "backover" deaths, which average to about 54 deaths annually. This was then multiplied by the ratio of on-road to off-road backover crashes that was found in the Death Certificate Study, to produce 330 deaths. (Under our current definition of backover deaths, we find 536 in 1991-1997, as compared to the 381 used in the PRE.) Thus, a FARS set using an "unknown" definition of backovers is averaged, and multiplied by a ratio under the assumption that all of the FARS cases are entirely on-road.

A further complication is that the Death Certificate Study definition of on-road and off-road did not correspond to the FARS definition of trafficway, which determines whether a case is included in FARS. The Death Certificate Study did a separate search of FARS over 2000-2001. This involved not merely checking FARS variables, but rather investigating the not-yet-destroyed police action reports (PARs) from which the FARS database is constructed, and determining if a crash was related to backover, and where it took place (on- or off-road). The analysis within the Death Certificate Study found that only 28 (27%) of 102 "verifiable" FARS backover crashes in those two years were actually on-road cases. However, it appears that the definition of on-road in the Death Certificate Study was limited from curb-to-curb (although it was subjectively applied), while the FARS definition of trafficway goes from private property line to private property line. So, for example, a

car backing out of a driveway and striking a person on the sidewalk was considered a “driveway” incident (off-road) in the Death Certificate Study, while it would be in the trafficway and included in FARS. In essence, we now know that we can’t rely on the ratio of on-road to off-road defined by the Death Certificate Study to inflate the FARS cases to get an estimate of total backover fatalities as was done in the PRE.

In summary, there were two mistakes made in the PRE. First, we relied on an older estimate of FARS cases for which we did not verify the definition of a backover case. Second, we assumed all FARS backover cases were on-the-road and applied a ratio of on-road to off-road from the Death Certificate Study to the FARS cases.

The Current Approach

The current estimate is constructed from a combination of two studies, the 2004 Death Certificate Study’s collection of backover deaths from 1998, and the FARS backover deaths within the same time period. In order to produce a set of FARS cases, we must first establish a definition for a FARS backover crash, specifically eliminating cases that include driverless vehicles (crashes that involved a child interfering with the controls and crashes where a driver left their vehicle and was subsequently killed due to the car’s movement).

Our new definition for these crashes will be examined in greater detail here, in addition to being attached as an appendix. After loading and merging the Accident and Person files, the people in the file are divided into Drivers and Nonoccupants (Pedestrians, Bicyclists, Other Cyclists, Other Pedestrians, and Unknown Non-motorist) that died. The nonoccupants were then associated with

the vehicle that struck them, by the variable N_MOT_NO. Next, all of the vehicles in the Vehicle File were merged with their corresponding drivers.

It is in this step that driverless vehicles are accounted for. If no specific person file of type “driver” is associated with a vehicle in FARS, this means that the driver was unknown or not present. This solution avoids cases of a driver exiting their vehicle and dying as a result of the vehicle moving backwards (due to technical or driver error). The official FARS coding for such a case states that the victim will be coded as a pedestrian after successfully exiting the vehicle after it has come to rest. Suppose, for instance, that in such a case, the victim was somehow coded as a driver. As such, the algorithm does not catalogue driver deaths, and the case is not counted. Next, suppose that the victim was coded as a non-occupant. This non-occupant would be related to the vehicle that struck them, but the vehicle would have no corresponding *identified* driver (there exists no such person in the Person file that is coded to be a driver as we have already assumed that by hypothesis.

Additionally, the FARS coding manual specifically instructs the user to only code an individual as a driver if they were driving the vehicle, not merely if a child was sitting in the driver’s seat. A handful of young drivers caused backover fatalities according to our definition over 1995-2004, but the youngest was 14 years old, which is a legal driving age in some states.

After this collection of identified vehicles with identified drivers is collected, it is merged with the non-occupant fatalities. Specifically, these cases are examined for those that fit the characteristics of a backup crash. That is, among these non-occupant fatalities (caused by identified vehicles with identified drivers), we only will examine the cases where a number of factors coincide. The first harmful event must be an impact with a non-occupant, and the vehicle must be performing a backover maneuver. Here the vehicle maneuver variable VEH_MAN was used, but with special attention to parking and exiting parking. If the vehicle maneuver was related to parking, an

additional check was made with the initial impact. Because the initial impact was with a non-occupant, the initial impact variable will describe where that non-occupant was struck by the vehicle. Therefore, if the initial impact was a non-occupant collision from 4 to 8 o'clock on the vehicle, then that vehicle would be associated with a backover maneuver.

The description above, with corresponding SAS code serves as a definition of a "backover crash" with respect to FARS. So far, no other definition has been documented to our knowledge regarding these cases. Alternatives exist amongst the choices of variables, especially the "first" impact and "first" harmful event being replaced with "principle" impact and "most" harmful event. By using the variables that describe the first impact, cases where pedestrian impacts are a result of some other action are less likely to be included.

According to FARS, there were 83 backover deaths in 1998 across the nation, and 58 backover deaths within the set of the 35 states and the District of Columbia over which the Death Certificate Study was done. By matching "backover" cases based on age, sex, state, and date of death, 14 matches were found. That is, it is highly likely that FARS and the Death Certificate Study have 14 cases in common. So, if we sum the distinct cases across both studies, there exist $(91-14) = 77$ cases just in the Death Certificate Study, $(58-14) = 44$ cases just in FARS, and 14 cases in both, for a sum of $(91-14) + (58-14) + 14 = 135$ cases. The Death Certificate study used a linear projection based on the number of death certificates they were granted access to by their respective states, and the number of death certificates overall that fit a preliminary search of standard coding. We then use the same ratio used in the death certificates of $(123/91)$ to expand the 135 cases to a national total of 183

deaths.¹ Thus, according to our national estimate of 183 deaths, 69 were children under 5 and 76 were children under 15. Also, 76 percent of the fatalities were caused by passenger vehicles, 24 percent were caused by medium/heavy trucks or other vehicles.

We justify using the 1998 data for a current estimate after examining the FARS data across several years. From 1991 to 2004, there is no definite trend in the number of fatalities, and it seems to hover in a range of 60-80 cases a year (averaging 76 cases per year in 1991 to 2004), with a slight downward trend (averaging 74 cases per year in the last 10 years from 1995 to 2004). One would expect with increasing vehicle registrations and vehicle miles traveled, there might be an increase over time, but FARS data do not support such a hypothesis in recent years.

Because the current approach uses a combination of death certificate cases and FARS data, only one year of information (1998) is available. Despite this limitation, distributions over several years worth of FARS can provide insight to the problem. Table 2 examines the distribution of the age of the victim by the striking vehicle.

¹ Sometimes, the use of a capture-recapture strategy can prove useful to finding a better estimate. Frequently used for animal populations or epidemiology, it almost applies in this case. However, a critical hypothesis requires each case to have an equal likelihood of appearing in either study, which is clearly false in this case. If a crash occurs entirely off-road, then it will never be in FARS. FARS and the Death Certificate Study are counting different types of fatalities, and as such are poor candidates for the capture-recapture method. Consider the conditional probability of a case in that is in one study being found in the other study. This probability would help us create a more accurate capture-recapture style model, but requires much more knowledge of the population than we have.

Table 1
Backover Deaths in FARS by Year

Year	Backover Fatalities
1991	83
1992	80
1993	76
1994	84
1995	75
1996	79
1997	59
1998	83
1999	70
2000	89
2001	66
2002	66
2003	79
2004	72

Table 2
Backover Deaths in FARS 1995-2004
(10 years of data)

Age	Pass. Car	SUV	Van	P/U	Medium & Heavy Truck	Other & Unknown	Total
<1 year	2	0	1	1	0	0	4
1 year	28	6	9	16	0	0	59
2 years	7	10	7	11	1	0	36
3 years	5	4	3	9	2	0	23
4 years	3	2	4	5	3	0	17
5 years	2	2	0	5	0	0	9
6 to 10 years	1	2	3	10	14	4	34
11 to 15 years	1	0	0	0	1	0	2
16 to 20 years	6	1	0	1	5	2	15
21 to 30 years	9	3	1	5	17	1	36
31 to 40 years	15	0	6	8	28	4	61
41 to 50 years	11	1	3	7	35	5	62
51 to 60 years	11	4	5	4	37	6	67
61 to 70 years	11	7	11	13	22	3	67
71 to 80 years	28	21	15	21	13	2	100
81 to 90 years	42	22	17	22	16	2	121
91 and up	14	3	3	3	1	0	24
Unknown	0	0	0	0	1	0	1
Total	196	88	88	141	196	29	738

We did not have enough detail available to break out the Death Certificate data by type of vehicle and pedestrian ages, because the vehicle type was unknown in a large number of cases. We looked at different ratios to help us make this determination. The ratio of passenger vehicles to all vehicles in FARS was about 70 percent when you consider all ages. The ratio of passenger vehicles to all vehicles (of the cases with known vehicle type) was only 55 percent in the Death Certificate study when the matching FARS cases were subtracted. However, pedestrian age was known in all cases and we examined vehicle type by age and found a better match in this comparison. Note how in 1995-2004 FARS 95% of the backover fatalities of children under 5 are caused by passenger vehicles. In the Death Certificate Study, in 1998, 10 (83%) of the 12 backover fatalities of children under 5 were caused by passenger vehicles. Similarly, the results by other age categories were close between the last 10 years of FARS and the Death Certificate Study. Finally, this relationship makes sense in that the opportunity to backover a young child is much higher for a passenger vehicle than for a medium to heavy truck and the opportunity to backover an adult and result in a fatality is relatively higher for a medium to heavy truck.

In order to distribute our annual estimate of 183 backover deaths by vehicle type, the following method was used. All of the 1998 FARS backover cases were examined first, followed by a closer look at the cases that appeared in both FARS and the Death Certificate Study. These “paired” cases were taken out of the Death Certificate Study. After removing the unknowns, the percentage of fatalities attributed to the various vehicle types in the remaining cases (only in the Death Certificate Study) was found. Each age group was examined within FARS over 1995-2004, the death certificate study’s “unique” cases (backover fatalities not in FARS 1998), and FARS 1998 for some insight to the distribution of striking vehicles within each age group. Because all of these distributions were similar within a given age group, we opted to use the percentages by age found in

the 1995-2004 FARS data, as both of the other sets were fairly small in comparison. Table 3 shows the final distribution.

Using this methodology, we have a very good estimation of the ages of all the 183 victims. By finding how many cases there were out of the 135 total cases, a ratio may be applied to 183 to find the number of fatalities are attributed to the different age groups. Because more than half of these 135 cases are extracted from the death certificates themselves, it is not a good record of the body type of the striking vehicle in these crashes. Thus, there are a significant number of “unknown” vehicle types when considering the 135 cases. For this reason, each age group was examined within FARS over 1995-2004, the death certificate study’s “unique” cases (backover fatalities not in FARS 1998), and FARS 1998 for some insight to the distribution of striking vehicles within each group. Since all of these distributions were similar, we opted for the 1995-2004 FARS data, as both of the other sets were fairly small in comparison.

Table 3
Current Annual Estimate of Backover Fatalities

Age	All Vehicles	Passenger Vehicles (based on % in FARS 1995-2004)
Under 5 years	69	66
5 – 10 years	7	4
11 – 15 years	0	0
16+ years	107	69
Total	183	139

The current approach produces an estimate of at least 183 deaths due to backovers annually. This is based on a one-time examination of death certificates, combined with corresponding FARS data.

Given the limitations of the information found on death certificates and FARS candidacy requirements, it must be noted that this is a “rough” estimate. The inherent difficulty of this problem

has led to several refinements in our methodology, each time improving our use of existing sources. Yet, this only serves to underscore the importance of improving those very same sources. Thus, the agency has conducted a review of existing systems to determine the feasibility for routinely and systematically collecting non-traffic fatality and injury counts as well as detailed incident data. So far, the results have been promising, and data collection should begin in 2007.

Appendix A – SAS Code with Definition for Backover Crash

```

libname fars1991 'r:\farssas\fars91';
libname fars1992 'r:\farssas\fars92';
libname fars1993 'r:\farssas\fars93';
libname fars1994 'r:\farssas\fars94';
libname fars1995 'r:\farssas\fars95';
libname fars1996 'r:\farssas\fars96';
libname fars1997 'r:\farssas\fars97';
libname fars1998 'r:\farssas\fars98';
libname fars1999 'r:\farssas\fars99';
libname fars2000 'r:\farssas\fars00';
libname fars2001 'r:\farssas\fars01';
libname fars2002 'r:\farssas\fars02';
libname fars2003 'r:\farssas\fars03';
libname fars2004 'r:\farssas\fars04';
libname library 'r:\farssas\formats\winfmt91.610';
options ls=150 pagesize=63 nofmterr
        formchar='|_.,...†#+%Š<€+=|-\/<>*';
proc format;
value yesno
    0='No'
    1='Yes'
    9='Unknown';

value sv
    99=' Unknown Number'
    1=' Single Vehicle'
    other='MultipleVehicles';

value harmev
    08='Pedestrian'
    09='Pedalcyclist'
    15='Non-occupant, other type'
    99='Unknown event'
    other='Other event';

value dircol
    1=' GoingBackward'
    2=' Going Ahead'
    8=' OtherManeuver'
    9=' UnknownManeuver';

value dirrow
    1='Going Backward'
    2='Going Ahead'
    8='Other Maneuver'
    9='Unknown Maneuver';

value vehtype
    1-9='Car'
    14-19='SUV'
    20-29='Van'
    30-39='P/U'
    10-13,
    40-48='Oth LV'
    49='Unk LV'
    50-59='Bus'
    60-78='Hvy trk'
    80-89='MC'
    90-97='Other'
    79,99='Unknown';

value vehsize
    1-2='Car Mini/Sub'
    3='Car Compact'
    4='Car Intermediate'
    5-6='Car Full/Largest'
    9='Car Unk'
    14='SUV Compact'
    15-16='SUV Large/Wagon'

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    19='SUV Unk'
    20='Minivan'
    21-28='Van Large'
    29='Van Unk'
    30='P/U Compact'
    31='P/U Large'
    32-39='P/U Unk'
    10-13,
    40-48='Oth LV'
    49='Unk LV'
    50-59='Bus'
    60-78='Hvy trk'
    80-89='MC'
    90-97='Other'
    79,99='Unknown';

value ptyperow
    5='Pedestrian'
    6-7='Pedalcyclist'
    8,19='Other nonoccupant';

value ptypecol
    5=' Pedes-   trian'
    6-7='  Pedal-  cyclist'
    8,19='   Other   non-occupant';

value ploc
    00='Not applicable'
    01='Intersection, in crosswalk'
    02='Intersection, on roadway, not in crosswalk'
    03='Intersection, on roadway, crosswalk not available'
    04='Intersection, on roadway, crosswalk availability unknown'
    05='Intersection, not on roadway'
    09='Intersection, unknown'
    10='Non-intersection, in crosswalk'
    11='Non-intersection, on roadway, not in crosswalk'
    12='Non-intersection, on roadway, crosswalk not available'
    13='Non-intersection, on roadway, crosswalk availability unknown'
    14='Non-intersection, in parking lane'
    15='Non-intersection, on road shoulder'
    16='Non-intersection, bike path'
    17='Non-intersection, outside trafficway'
    18='Non-intersection, other, not on roadway'
    19='Non-Intersection, unknown'
    99='Unknown location';

value age
    99='Unknown';

data accl;
set fars1991.accident(in=yr1991)
    fars1992.accident(in=yr1992)
    fars1993.accident(in=yr1993)
    fars1994.accident(in=yr1994)
    fars1995.accident(in=yr1995)
    fars1996.accident(in=yr1996)
    fars1997.accident(in=yr1997)
    fars1998.accident(in=yr1998)
    fars1999.accident(in=yr1999)
    fars2000.accident(in=yr2000)
    fars2001.accident(in=yr2001)
    fars2002.accident(in=yr2002)
    fars2003.accident(in=yr2003)
    fars2004.accident(in=yr2004);
if yr1991 then year=1991;
else if yr1992 then year=1992;
else if yr1993 then year=1993;
else if yr1994 then year=1994;
else if yr1995 then year=1995;
else if yr1996 then year=1996;
else if yr1997 then year=1997;
else if yr1998 then year=1998;

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else if yr1999 then year=1999;
else if yr2000 then year=2000;
else if yr2001 then year=2001;
else if yr2002 then year=2002;
else if yr2003 then year=2003;
else if yr2004 then year=2004;
keep year st_case day_week hour weather;

data perl;
set fars1991.person(in=yr1991)
    fars1992.person(in=yr1992)
    fars1993.person(in=yr1993)
    fars1994.person(in=yr1994)
    fars1995.person(in=yr1995)
    fars1996.person(in=yr1996)
    fars1997.person(in=yr1997)
    fars1998.person(in=yr1998)
    fars1999.person(in=yr1999)
    fars2000.person(in=yr2000)
    fars2001.person(in=yr2001)
    fars2002.person(in=yr2002)
    fars2003.person(in=yr2003)
    fars2004.person(in=yr2004);
if yr1991 then year=1991;
else if yr1992 then year=1992;
else if yr1993 then year=1993;
else if yr1994 then year=1994;
else if yr1995 then year=1995;
else if yr1996 then year=1996;
else if yr1997 then year=1997;
else if yr1998 then year=1998;
else if yr1999 then year=1999;
else if yr2000 then year=2000;
else if yr2001 then year=2001;
else if yr2002 then year=2002;
else if yr2003 then year=2003;
else if yr2004 then year=2004;
keep year state st_case veh_no n_mot_no
    location ve_forms harm_ev
    age sex per_typ inj_sev p_cf1-p_cf3;

data per2;
merge accl(in=a) perl(in=b);
by year st_case;
if a*b=1;

data
    driver (keep=year state st_case veh_no
            DriverAge DriverSex
            day_week hour weather)
    nonoccl(keep=year state st_case matchno
            location ve_forms harm_ev
            NonoccAge NonoccSex
            NonoccType p_cf1-p_cf3
            day_week hour weather);
set per2;
label ve_forms='Vehicles';
if per_typ=1 then do;
    DriverAge=age;
    DriverSex=sex;
    output driver;
end;
else if per_typ in(5,6,7,8,19) and inj_sev=4 then do;
    if ve_forms=1 then matchno=1;
    else matchno=n_mot_no;
    NonoccType=per_typ;
    NonoccAge=age;
    NonoccSex=sex;
    output nonoccl;
end;

proc sort data=nonoccl;

```

```

by year st_case matchno;

data veh1;
set fars1991.vehicle(in=yr1991)
  fars1992.vehicle(in=yr1992)
  fars1993.vehicle(in=yr1993)
  fars1994.vehicle(in=yr1994)
  fars1995.vehicle(in=yr1995)
  fars1996.vehicle(in=yr1996)
  fars1997.vehicle(in=yr1997)
  fars1998.vehicle(in=yr1998)
  fars1999.vehicle(in=yr1999)
  fars2000.vehicle(in=yr2000)
  fars2001.vehicle(in=yr2001)
  fars2002.vehicle(in=yr2002)
  fars2003.vehicle(in=yr2003)
  fars2004.vehicle(in=yr2004);
if yr1991 then year=1991;
else if yr1992 then year=1992;
else if yr1993 then year=1993;
else if yr1994 then year=1994;
else if yr1995 then year=1995;
else if yr1996 then year=1996;
else if yr1997 then year=1997;
else if yr1998 then year=1998;
else if yr1999 then year=1999;
else if yr2000 then year=2000;
else if yr2001 then year=2001;
else if yr2002 then year=2002;
else if yr2003 then year=2003;
else if yr2004 then year=2004;
matchno=veh_no;
if 1<=body_typ<=9 then do;
  if 1000<=VIN_wgt<=1949 then VehicleSize=1;
  else if 1950<=VIN_wgt<=2449 then VehicleSize=2;
  else if 2450<=VIN_wgt<=2949 then VehicleSize=3;
  else if 2950<=VIN_wgt<=3449 then VehicleSize=4;
  else if 3450<=VIN_wgt<=3949 then VehicleSize=5;
  else if 3950<=VIN_wgt<=9000 then VehicleSize=6;
  else VehicleSize=9;
end;
else VehicleSize=body_typ;
keep year st_case veh_no matchno
  VehicleSize dr_drink trav_sp veh_man
  impact1 impact2 impacts m_harm dr_cf1-dr_cf4;

data veh2;
merge veh1(in=a) driver(in=b);
by year st_case veh_no;
if a=1;
DriverPresent=b;

data nonocc2;
merge nonocc1(in=a) veh2(in=b);
by year st_case matchno;
if a=1;
if b=0 then do;
  DriverPresent=9;
  impacts=9;
end;
StrikingVehicleKnown=b;

proc sort data=nonocc2;
by StrikingVehicleKnown DriverPresent;

data nonocc3;
set nonocc2;
if StrikingVehicleKnown*DriverPresent=1 and
  harm_ev in(08,09,15);

data nonocc4;
set nonocc3;

```



```
if veh_man in(6,8) then do;
  if 4<=impact1<=8 then Maneuver=1;
  else if impact1 in(10,11,12,1,2) then Maneuver=2;
  else Maneuver=9;
end;
else if veh_man=15 then Maneuver=1;
else if veh_man=1 then Maneuver=2;
else if veh_man=99 then Maneuver=9;
else Maneuver=8;

data nonocc5 backing ahead;
set nonocc4;
if Maneuver in(1,2);
output nonocc5;
if Maneuver=1 then output backing;
else if Maneuver=2 then output ahead;
```

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