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National Highway Traffic Safety Administration

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# Study of Differences in Hybrid III Chest Deflections Due to Three-and Two-Point Belt Loadings

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This letter describes the work that has been done under Order No. DTNH22-87-P-02088, "Study of Differences in Hybrid III Dummy's Chest Deflections Due to Three- and Two-Point Belt Loadings." Under this Order, UMTRI has adapted the Hybrid III dummy's chest deflection characteristics to the MVMA2D crash victim simulation program and performed parametric studies to determine how chest deflection of two-point and three-point belt-restrained dummies are affected by belt properties, seat cushion geometry and stiffness, floor board and knee cushion locations.

#### DATA RESOURCES

Four information sources were used in developing the data sets for this study. The first of these was used to obtain vehicle interior geometric data. The Volkswagen Rabbit vehicle interior, occupant posture, H-point location, and two-point belt geometry were obtained from previous work conducted at UMTRI reported in "Biomechanical Accident Investigation Methodology." This report, authored by D. H. Robbins, J. W. Melvin, D. F. Huelke, and H. W. Sherman, was the output from a project sponsored by MVMA that was completed in 1983. The vehicle data were obtained from seating package drawings supplied by Volkswagen of America. They were used in the successful reconstruction of an offset head-on crash between a 1979 Blazer and a 1980 VW Rabbit. Both occupants of the Rabbit were wearing automatic shoulder belts.

The second data source was used to replace the human data used in the accident reconstruction with Hybrid III parameters. The source for the Hybrid III parameters in MVMA2D format was a data set provided by General Motors to NHTSA for general use.

The third data source was used to replace the vehicle deceleration estimated for the crash reconstruction mentioned above. The new barrier crash pulse that was used was obtained at TRC.

The fourth, and final, data source provided upgraded advanced three-dimensional belt geometry developed from concepts used in a recent study conducted for industry.

#### METHOD FOR DETERMINING CHEST DEFORMATION

Figures 1 and 2 show the geometry of the model which is used to estimate chest deflection from MVMA2D simulation output. Two configurations of the torso belt crossing the chest are shown in Figure 1. The first (solid line) is the path over the chest for the MVMA2D simulation. This reflects the fact that the belt is attached to points on the chest which cannot move with respect to the chest center of gravity. The second (dotted line) shows the path the belt would take over the torso if chest deflection is allowed. The displacement at the top of the chest is shown to be different from the displacement at the bottom. In order for dummy kinematics predicted by the MVMA2D model to match test data that includes Hybrid III chest deformation, it is necessary to reduce belt stiffness for the computer simulation to allow more belt stretch for the same applied force.

Figure 2 shows details of belt and chest deformation and the effect of applied forces on both. The upper and lower belts as well as the chest are shown as free bodies. Elongation of all belts includes the effects of the applied forces on the upper and lower sections. An additional elongation is included for the MVMA2D model simulation to take into account the effect of chest deflection. This additional elongation effect depends on both belt angle and the deflection at the top and bottom of the chest. The assumption has been made that the difference in belt angle is small between the MVMA2D and test conditions. Different stiffnesses have been assigned to the top and bottom of the chest to test the hypothesis that Hybrid III dummy chest deflection may have more than one degree of freedom (at a minimum, rotational as well as uniaxial motion).

The geometric model that has been presented can now be used to develop a method for using the unmodified MVMA2D model to predict differential chest deflections. The first step is to make a major assumption that both belt and chest stiffnesses can be modeled by linear springs as is done in the following simplistic analysis. The belt force components normal to the chest are related to the displacements at its top, bottom, and center by the equations,

$$F_{\tau} \cos \theta_{\tau} = k_{\tau} \delta_{\tau} .$$

$$F_{B} \cos \theta_{B} = k_{B} \delta_{B}$$

$$F = F_{\tau} \cos \theta_{\tau} + F_{B} \cos \theta_{B}$$

$$F = k_{c} \delta = k_{\tau} \delta_{\tau} + k_{B} \delta_{B} = k_{c} \left( \frac{\delta_{\tau} + \delta_{B}}{2} \right)$$



ST = deflection at top of stermum 5 = mid-sternum deflection SB= deflection at bottom of sternum Fr = force in upper belt Fo = force in lower belt

Figure 1. Schematic of MVMA2D model of left path over chest with effect of chest deformation superimposed.



-l\_andlg = unstretched length of upper and lower belts of and of = elongation of belt due tobelt force, FT and FB. der and des = added belt elongation to account for chest compression within limits of MVMA2D left model (fixed to torso). Orando = Beltangles with vertical & ond k = Stiffnesses at top and bottom of chest F = overall reaction force of stemanoto applied left forces Stand SB = deflections at top and bottom of chest. Fr and Fg = Forces acting on upper and lover bett segments

Figure 2. Details of helt and chest deformation and the effects of the applied forces.

where  $h_{c}$  is the overall chest stiffness. If the compliances at the top and bottom of the chest are the same,

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$$h_{\tau} = h_{R} = h$$

$$k_{c} \left(\frac{\delta_{\tau} + \delta_{B}}{2}\right) = k \left(\delta_{\tau} + \delta_{B}\right)$$

$$h_{c} = 2 k$$

Note from Figure 2 that the MVMA2D belt elongation effect due to chest deflection can be expressed in terms of chest deflection as,

$$\delta_{CB} = \delta_B \cos \theta_B$$
$$\delta_{CT} = \delta_T \cos \theta_T$$

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The force-deflection equations can now be written,

$$F_{T} \cos \theta_{T} = \frac{k_{e}}{2} \delta_{T} = \frac{k_{e}}{2} \frac{\delta_{eT}}{\cos \theta_{T}}$$

$$F_{B} \cos \theta_{B} = \frac{k_{e}}{2} \delta_{B} = \frac{k_{e}}{2} \frac{\delta_{eB}}{\cos \theta_{B}}$$
(1)

In terms of either belt force, or deflection in the belt, they can be rewritten as,

$$\int_{C_T} \frac{2 \operatorname{Coc}^2 \Theta_T}{h_c} F_T \quad ; \quad \int_{C_B} \frac{2 \operatorname{Coc}^2 \Theta_B}{h_c} F_B \quad (2)$$

$$F_T = \frac{h_c}{2 \operatorname{Coc}^2 \Theta_T} \int_{C_T} f_B = \frac{h_c}{2 \operatorname{Coc}^2 \Theta_B} \int_{C_B} f_B \quad (2)$$

These simplistic equations illustrate the interacting effects of chest stiffness, belt angle, and belt properties for given belt forces. If belt angle is zero, then the entire belt force is applied to chest deformation. As the belt angle increases toward 90 degrees, the effect becomes less. Different belt angles at the top and bottom of the chest can clearly have a major effect on the loads that are applied to the chest and the chest deflections which result.

Equations 2 provide the information needed to compute the amount of strain that must be added to the MVMA2D belt lengths for inclusion of the effect of Hybrid III chest deflection.

$$F_{T} = \frac{h_{c} l_{T}}{2c_{\sigma 2}^{2} \theta_{T}} \left(\frac{\delta_{cT}}{l_{T}}\right) = \frac{h_{c} l_{T}}{2c_{\sigma 2}^{2} \theta_{T}} \epsilon_{cT} \qquad (3)$$

$$F_{B} = \frac{h_{c} l_{B}}{2c_{\sigma 2}^{2} \theta_{B}} \left(\frac{\delta_{cB}}{l_{B}}\right) = \frac{h_{c} l_{B}}{2c_{\sigma 2}^{2} \theta_{B}} \epsilon_{cB}$$

These equations define belt stiffness adjustments that include effects of chest deflection, belt angle, and belt length. Belt angle and length are known from the test setup geometry. The equations are used to compute the effects of shared deflection between the belt and the chest for inclusion in the input data for the MVMA2D model (Cards 710 and 711, fields 8 and 9 to define the material names, and cards 704-709 to define material properties).

Chest stiffness is based on post-test dummy calibration thorax impact data from the TRC Volkswagen Rabbit barrier impact mentioned earlier. Assuming a linear force-deflection curve, the chest stiffness is about 418 pounds/inch (5413.8 newtons maximum resistive force and 6.39 centimeters maximum deflection from the test) until geometric restrictions to motion are generated. Because of the "clavicle", only a small amount of deflection at the top of the chest beyond about 2.2 inches can take place. At the bottom of the chest, bottoming out begins to occur at about 3.25 inches. Beyond the points at which bottoming out is assumed to occur, a stiffness value of 12750 pounds/inch is chosen on the basis of data obtained from industry sources. So, up to a point, the bottom of the chest is more compliant than the top.

Equations 1 can be rewritten for use in estimating chest deflections from MVMA2D model output.

$$\delta_{T} = \frac{2 \cos \theta_{T}}{k_{e}} F_{T} , \quad \delta_{B} = \frac{2 \cos \theta_{B}}{k_{e}} F_{B}$$
 (4)

Belt angle, belt force, and chest stiffness are all known. Maximum values of belt angles and forces are obtained from the MVMA2D output while different chest stiffnesses are used for the top and bottom of the chest. A short program in BASIC was written to compute the deflections from the MVMA2D output.

A final comment should be made about an assumption made in this analysis which is clearly illustrated in Figure 2. The computations are based on forces and deflections normal to the surface of the chest. The drawing correctly shows a surface line of the chest which is not normal to either deflection or force. The results will be most accurate when the torso is essentially upright during the application of crash loads. The predictions using this analysis are intended to show performance trends rather than quantitative results. To determine the accuracy of the procedure, validation against experimental results will be required.

#### MATRIX OF COMPUTER RUNS

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Farameter studies have been conducted to determine how chest deflection of two-point and three-point belt-restrained dummies are affected by belt properties, seat cushion geometry and stiffness, as well as floor board and knee bolster locations. The following variations to the baseline two-point and three-point belt data sets have been made:

- Knee bolster moved 2 inches toward the front of the vehicle. Knee bolster moved 1.85 inches toward the occupant to almost touch the knees.
- Toeboard moved 4 inches toward the front of the vehicle.
- Knee bolster moved 2 inches toward the front of the vehicle and toeboard moved 4 inches toward the front of the vehicle.
- Upper torso belt anchor moved 4 inches toward the rear of the vehicle.
- Lower torso belt anchor (lap belt in the case of the three-point belt) moved 4 inches toward the rear of the vehicle and moved 4 inches toward the front of the vehicle.
- Both upper and lower belt anchors moved 4 inches toward the rear of the vehicle
- Belt stiffness reduced by a factor of 0.5
- Seat cushion stiffness reduced by a factor of 0.5
- Seat cushion friction set to 1.0
- Belt slack increased to 3.5 inches

The baseline data sets are included as Appendices A and B at the end of this letter report.

#### SUMMARY OF RESULTS

Tables 1 through 4 are a summary of the results obtained from the computer runs. A total of 44 computer runs were made. The earliest and most time consuming were those conducted while assembling data from the various data resources discussed previously. A total of 26 computer runs are included in the tables. A coding for the various runs is given as follows:

- 2 Pt Base. The baseline run for the two-point passive belt system.
- Bols+2. The entire bolster structure is moved forward 2 inches.
- Bols-1.85. The entire bolster structure is moved to nearly touch the occupant's knees.
- UT Anch-4. The anchor in the vehicle for the upper torso belt is moved 4 inches to the rear.
- LT Anch-4. For the two-point belt, the anchor in the vehicle for the lower section of the torso belt is moved 4 inches to the rear. For the three-point belt, the anchor in the vehicle for the stalk is moved 4 inches to the rear.
- LT Anch+4. Same as above except anchor is moved toward the front of the vehicle.
- UT&LT A-4. Both belt anchors are moved 4 inches toward the rear of the vehicle.
- Belt K\*.5. The belt stiffness curve is reduced by a factor of 0.5.
- Slack=3.5. Belt slack in the various segments is increased from 1 inch to 3.5 inches.
- Toebo(a)rd+4. The entire toeboard structure is moved 4 inches toward the front of the vehicle.
- SC K\*.5. The seat cushion stiffness curve is reduced by a factor of 0.5.
- SC Fric=1. The seat cushion friction coefficient is increased from 0.2 to 1.0.
- Bol+2,TB+4. The bolster and toeboard are moved toward the front of the vehicle by 2 inches and 4 inches respectively.

Table 1.	Summary of Hip Motion, Femur Load, C	Chest
	Deceleration, and Chest Deflection O	Jutput
	(Two-point belts).	

Variation     	Hip X (in)	Hip Z (in)	Femur 10ad (16)	Chest G's	Upper chest defl. (in)	Lower Chest defl. (in)
2 PT Base :	0.40 	i 1.14 	4114			i 3.33 
Bols+2	8.43	0.50	4850	66.2	2.59	3.37
Bols-1.85	4.24	1.74	3188	50.9	2.48	3.31
UT Anch-4	6.43	1.17	4107	54.0	2.51	3.32
LT Anch-4	6.32	1.02	4074	56.3	2.54	3.37
LT Anch+4	6.56	1.25	4162	54.2	2.51	3.29
UT< A-4	6.32	1.05	4068	55.6	2.52	3.35
Belt K*.5	6.59	1.22	4179	50.0	2.44	3.30
Slack=3.5	6.67	1.23	4626	59.2	2.49	3.32
Toebord+4	6.41	1.15	4157	55.6	2.53	3.33
SC K*.5	6.68	1.74	4210	56.2	2.53	3.34
SC Fric=1	5.91	1.24	4120	56.7	2.54	3.34
Bo1+2, TB+4	8.34	0.47	4698	65.7	2.59	3.37
		•				

Variation	Hip X (in)	Hip Z   (in)   	Femur load (16)	Chest   G's   	Upper chest defl. (in)	Lower chest defl. (in)
3 Pt Base	5.62	2.10	3119	47.6	2.39	2.88
Bols+2	7.19	1.76	2850	;	2.46	3.26
Bols-1.85	3.86	2.35	2608	41.8	2.35	2.37
UT Anch-4	5.62	2.11	3108	47.8	2.39	2.76
LT Anch-4	5.20	2.09	2753	49.2	2.40	3.27
LT Anch+4	6.13	2.01	3581	48.0	2.38	1.94
UT< A-4	5.20	2.09	2744	49.9	2.40	3.26
Belt K*.5	6.06	1.78	3587	38.1	2.31	2.21
Slack=3.5	6.62	1.40	4215	47.6	2.33	2.71
Toebord+4	5.60	2.11	3193	47.3	2.39	2.84
SC K=.5	5.66	2.75	3195	47.3	2.39	2.91
SC Fric=1	5.37	1.92	3307	51.4	2.40	2.92
Bol+2,TB+4	7.08	1.78	2908	59.1	2.45	3.26
i						

Table 2. Summary of Hip Motion. Femur Load. Chest Deceleration. and Chest Deflection Output (Three-point Belts).

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Variation	Up Belt Load (pounds)	Up Belt Angle (degrees)	Lo Belt Load (pounds)	Lo Belt Angle (degrees)
2 Pt Base	2661	14.44	2022	51.71
Bols+2	3079	14.03	2340	50.51
Bols-1.85	2388	15.35	1815	   53.19
UT Anch-4	2520	12.18	1915	51.82
LT Anch-4	2714	14.74	2062	44.90
LT Anch+4	2546	13.99	1935	; ; 59.92
UT< A-4	2569	12.38	1952	44.95
Belt K*.5	2059	13.42	1565	49.57
Slack=3.5	2372	12.78	1803	48.68
Toeboard+4	2658	14.44	2020	51.73
SC K*0.5	2676	15.48	2034	50.24
SC F=1.0	2716	13.95	2064	52.19
Bo1+2,TB+4	3073	14.00	2335	50.58
			; <b></b>	

Table 3. Summary of Belt Output (Two-point Belts).

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Table 4. Summary of Belt Output (Three-point Belts).

Variation	Up Belt	: Up Belt	Lo Belt	Lo Belt
	Load	Angle	l Load	Angle
	l (pounds) 	(degrees) 	¦ (pounds) ¦	(degrees) 
3 Pt Base	1777		   1351	61.79
Bols+2	2192	14.93	1666	61.32
Bols-1.85	1490	15.48	1133	62.30
UT Anch-4	1752	12.67	1331	62.62
LT Anch-4	1844	15.63	1402	54.33
LT Anch+4	1670	14.26	1269	70.20
UT< A-4	1815 	13.02	1379	54.39
Belt K*0.5	1196	13.89	, 909 !	57.35
Slack=3.5	1379	12.38	1048 	54.93
Toeboard+4	1771	. 15.13	1346 	62.05
SC K*0.5	1767	. 16.05	1343	61.28
SC Fric=1.	1818	14.50	1382 	61.99
Bo1+2,TB+2	2160	. 14.92	1641	61.33

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#### OBSERVATIONS

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The following six output parameters were included in the results given in Tables 1 - 4:

- Hip motion
- Belt loads
- Chest deflection (top and bottom)
- Knee loads
- Belt angles
- Chest G's

Observations of the effects of the various parameter variations on these quantities follow.

1. Hip motion. The X-motion of the hip is the smallest when the bolster is positioned closest to the knees. Likewise, it is the largest when the bolster is located furthest away. Conversely, the Z-motion is greatest when the bolster is closest, and also, when the seat cushion is softest. The hip X-motion is greater for two-point systems than it is for three-point systems. The converse is true for Z-motion.

2. Belt loads. Torso belt loads are largest when the bolster is positioned the furthest from the knees. This is due to the fact that the chest begins to absorb energy before the knees. Torso belt loads are lower when the bolster is closest and when belt slack is greatest. The reason for improved performance with an increase in belt slack in this case is the improved phasing of loads applied to the torso and hip. The smallest loads are applied in the case of the smallest belt stiffness. Loads in the two-point belt systems are larger than those in the three-point belt system.

3. Chest deflections. Chest deflections are larger for the two-point belt systems than they are for the three-point belt systems at both the top and the bottom of the chest. Lower chest deflection values are similar to, or larger than, upper chest deflection values for three-point belt loading. This depends on bolster and lower belt anchor locations. Forward belt anchor locations and bolsters positioned close to the knees result in deflections at the bottom of the chest which are similar in value to those at the top of the chest. In all cases with the two-point belt system, the deflection at the bottom of the chest is significantly larger than that at the top. This effect is accentuated by the blocking effect of the clavicle structure in the Hybrid III against an increase of belt angle as the dummy moves forward.

4. Knee loads. Knee loads are significantly lower for the three-point belt systems because the belts absorb a significant portion of the crash loading on the occupant. 5. Belt angles. The significantly larger angle of the lower torso element in the two-point belt system results in a larger force component normal to the surface of the chest than is the case with the three-point belt systems.

6. Chest G-loading. Chest G's are larger for two-point belts. This reflects the larger loads which are applied. The lowest loads are for the case of belts with reduced stiffness properties. The largest loads occur when there is a time delay before the occupant interacts with the vehicle. In these cases, the bolster is further from the knees or there is slack in the belt system.

# APPENDIX A

### TWO-POINT BELT SYSTEM BASELINE DATA SET

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#### Listing of DOTVW31 at 17:38:41 on FEB 4, 1988 for CCId=SWLN on Um

| 1        | DOTVW3   |          |            |             |            |        |             |         |        | 100         |
|----------|----------|----------|------------|-------------|------------|--------|-------------|---------|--------|-------------|
| 2        | 1.       | Ο.       | 32.174     | Ο.          | Ο.         | 150.   | . 5         | 1.      | 10.    | 101         |
| Э        | Э.       | Ο.       | Ο.         | Ο.          | Ο.         | Ο.     | 10.         | .000001 | 5.     | 102         |
| 4        | FOOT     |          | FLOOR      |             |            |        |             |         |        | 106         |
| 5        | CHEST    |          | STEERING   | WHEEL       |            |        |             |         |        | 106         |
| 6        | CHEST    |          | SEATBACH   | C           |            |        |             |         |        | 106         |
| 7        | MID-TORS | 50       | STEERING   | 3 WHEEL     |            |        |             |         |        | 106         |
| 8        | HIP      |          | CUSHION    |             |            |        |             |         |        | 106         |
| 9        | ULEG     |          | CUSHION    |             |            |        |             |         |        | 106         |
| 10       | LARM     |          | STEERING   | WHEEL       |            |        |             |         |        | 106         |
| 11       | MID-TORS | 50       | SEATBACH   | C           |            |        |             |         |        | 106         |
| 12       | HEAD     |          | ROOF       |             |            |        |             |         |        | 106         |
| 13       | LARM     |          | INST.PAP   | 4E L        |            |        |             |         |        | 106         |
| 14       | HEAD     |          | STEERING   | WHEEL       |            |        |             |         |        | 106         |
| 15       | ULEG     |          | BOLSTER    |             |            |        |             |         |        | 106         |
| 16       | SISHIN   |          | BOLSTER    |             |            |        |             |         |        | 106         |
| 17       | S2SHIN   | · ·      | BOLSTER    |             |            |        |             |         |        | 106         |
| 18       | SJSHIN   |          | BOLSTER    |             |            |        |             |         |        | 106         |
| 19       | HEAD     |          | INST.PAP   | JEL         |            |        |             |         |        | 106         |
| 20       | HEAD     |          | WINDSHIE   | ELD         |            |        |             |         |        | 106         |
| 21       | Ο.       | 1.       | 1.         | Ο.          | Ο.         | Ο.     | <b>0</b> .  | Ο.      | Ο.     | 107         |
| 22       | Ο.       | 0.       | Ο.         | 0.          | Ο.         | Ο.     | Ο.          | Ο.      | 1.     | 108         |
| 23       | 1.       | 1.       | Ο.         | Ο.          | Ο.         | Ο.     | Ο.          | Ο.      | 0.     | 109         |
| 24       | Ο.       | 0.       | Ο.         | Ο.          | Ο.         | 1.     | 1.          | 1.      | 1.     | 110         |
| 25       | Ο.       | 0.       | 0.         | 0.          | Ο.         | Ο.     | <b>O</b> .  | 0.      | 0.     | 111         |
| 26       | HYBRIC   | D 3 DUMM | ۲          |             |            |        |             |         |        | 200         |
| 27       | . 477    | 11.573   | 5.109      | 3.722       | 15.815     |        | 10.3        | 2.993   | 657    | 201         |
| 28       | 1.883    | 6.165    | 2.55       | 2.306       | 9.445      | 9.45   | 5.143       | 5.95    | . 1434 | 202         |
| 29       | . 0258   | . 098    | . 0328     | . 0984      | .0691      | . 0535 | .0226       | .0259   | .0087  | 203         |
| 30       | . 253    | 1.917    | . 428      | 1.286       | 1.202      | 3.038  | . 204       | . 632   | . 053  | 204         |
| 31       | 44.236   | 123.861  | Ο.         | . 398 12    | 17.394     | 10.    |             | -60.    | . 75   | 205         |
| 32       | 44.236   | 123.861  | Ο.         | . 398 12    | 17.394     | 10.    |             | -90.    | . 75   | 206         |
| 33       | 884.72   | 0.       | <b>0</b> . | . 6998 1    | 884.82     | 400.   | 20.         | -50.    | . 75   | 207         |
| 34       | 102.4728 | 9-7.6207 | 5.1943356  | 5.69981     | 884.72     | 400.   | -43.        | -83.    | . 75   | 208         |
| 35       | 84.40653 | 3-4.8084 | 1.1052258  | 30.         | 884.72     | 400.   | ο.          | -120.   | . 75   | 209         |
| 36       | 0.       | 29.815   | 0.         | <b>0</b> .  | 221.18     | 100.   | 135.        | 0.      | .75    | 210         |
| 37       | 24.3917  | 10.      | .0064540   | <b>xo</b> . | 221.18     | 100.   | <b>3</b> 0. | - 180.  | . 75   | 211         |
| 38       | 12.19143 | 30.      | .0064540   | ю.          | 309.65     | 100.   | Э.          | -145.   | . 76   | 212         |
| 39       | 4566.32  | Ο.       | 0.         | 37.101      |            |        |             |         |        | 213         |
| 40       | 684.95   | 0.       | 0.         | 8.0767      |            |        | 1.575       |         | 1.     | 214         |
| 41       | 4.061    | 13.271   | 0.         | . 1 106     | 19.703     | 8.     | 46.         |         | . 6    | 215         |
| 42       | 4.061    | 17.517   | 0.         | .0531       | 74.872     | 30.    | 21.5        |         | . 8    | 216         |
| 43       | -15.1    | -11.2    | -14.2      | -39.        | -43.6      | 74.    | -38.3       | -63.    |        | 217         |
| 44       | 1.698    | 6.2      | 0.         |             |            |        |             |         |        | 218         |
| 45       | HEAD     |          |            | -           | 1.         | 1.     |             |         |        | 219         |
| 46       | CHEST    |          | CHESTMA    |             | 2.         | 1.     |             |         |        | 219         |
| 4/       | SLUR     | ~        |            |             | 2.         | 1.     |             |         |        | 219         |
| 48       | MID-TUKS | 50       | CHESIMA    | I           | 3.         | 1.     |             |         |        | 219         |
| 49       | HIP      |          |            |             | 4.         | 1.     |             |         |        | 219         |
| 50       | ULEG     |          |            |             | D.         | 1.     |             |         |        | 219         |
| 51       | RNEE     |          |            |             | υ.<br>c    | 1.     |             |         |        | 219         |
| 52       | 212414   |          |            |             | о.<br>С    | 1.     |             |         |        | 219         |
| 53       | 222HIN   |          |            |             | <b>0</b> . | 1.     |             |         |        | 219         |
| 04<br>66 | 333HIN   |          |            |             | 0.<br>E    | 1.     |             |         |        | 219         |
| 50       | .141     |          |            |             | U.         | 1.     |             |         |        | 219         |
| 57       |          |          |            |             | <b>.</b>   |        |             |         |        | 219         |
| 58       |          |          |            |             | 7          |        |             |         |        | 2120        |
|          |          |          |            |             | •••        | • •    |             |         |        | <b>₹1</b> 3 |

| 60     HAD     CCBMT     -0.03     0     4.4     3.90       61     HAD     CCBMT     -1.299     0     4.13     4.13     4.13       61     HID     756     -0.30     4.13     4.13     4.13     4.13       61     HID     -1.299     0     4.13     4.13     4.13     4.13       61     HID     -1.294     157     -1.294     2.93     2.93       61     HID     -1.294     157     -1.21     4.13     4.13       61     HID     -1.294     157     -1.21     2.93     2.93       71     FOI     -1.294     157     -2.71     1.772     4.13       71     FOI     -1.73     157     -2.72     2.93     2.93       71     FOI     -1.73     157     -2.72     1.72     1.72       71     FOI     -1.73     177     -1.72     1.72     1.72       71     FOI     -1.73     1.77     -1.72     1.72     1.72       71     FOI     -1.73     1.77     -1.72     1.72     1.72       71     FOI     -1.72     1.72     1.72     1.72     1.72       71     FOI                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51     HEAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 52     CHEST     -1.299     0.     4.07     1.299     0.       54     HID-TORSD     -2.047     1.205     2.047     1.205     2.053       55     HID-TORSD     -2.047     1.063     4.031     4.031     4.031       55     KIE     -3.047     1.063     4.031     4.031     4.031       55     S1511N     -7.047     1.063     4.031     2.032     2.033       77     FOI     -2.047     -1.063     4.031     2.032     2.033       77     FOI     -2.047     -1.063     4.131     4.172       77     FOI     -2.047     -1.063     1.774     4.774       77     FOI     -2.047     -1.063     0.017     1.274       77     FOI     -0.030     0.017     1.207     2.023       7     FOI     -0.030     0.077     1.724     1.774       7     FOI     -0.030     0.077     1.774     1.774       7     FOI     -0.033     0.047     1.272     1.774       7     FOI     -0.035     0.047     1.272     1.774       7     FOI     -0.035     1.774     1.774     1.774       7     FOI <td< td=""></td<>                                                                                                                                                                                                                                                                          |
| 53     5.00     -0.01     0.0     -0.01     0.0       65     -0.01     -0.01     0.00     -0.01     0.00     -0.01       65     -0.01     -0.01     0.01     -0.01     0.01     -0.01       7     100     -0.01     0.01     -0.01     0.01     -0.01       7     100     -0.01     0.01     -0.01     -0.01     -0.01       7     100     -0.01     0.01     -0.01     -0.01     -0.01       7     100     -0.01     0.01     -0.01     -0.01     -0.01       7     100     -0.01     0.01     -0.01     -0.01     -0.01       7     100     -0.01     0.01     -0.01     0.01     -0.01       7     100     -0.01     0.01     -0.01     0.01     -0.01       7     100     -0.01     0.01     -0.01     0.01     -0.01       7     100     -0.01     0.01     -0.01     0.01     0.01       7     100     -0.01     0.01     -0.01     0.01     0.01       7     100     0.01     -0.01     0.01     0.01     0.01       7     100     0.01     0.01     0.01                                                                                                                                                                                                                                                                                                                |
| 64     HIP     T00300     -2.047     -1.063     4.331     4.331       65     HIP     -9.94     591     4.331     4.331       65     VICE     -9.94     591     4.346     2.953       77     53511N     -1.645     2.917     2.323     2.933       73     53511N     -1.645     2.917     2.323     2.933       73     53511N     -1.645     2.917     2.323     2.933       73     1001     -1.934     1.917     1.772     1.772       73     1001     -1.773     1.773     1.772     1.772       73     1001     -1.773     1.773     1.772     1.772       173     1001     -1.773     1.773     1.773     1.772       173     1001     -1.773     1.773     1.773     1.773       173     1001     -1.773     1.773     1.773     1.773       174     1001     -1.773     1.773     1.773     1.773       174     1101     11021     11021     11021     1001       175     1001     1001     11021     11021     1001       175     1001     1001     1001     1001     1001       <                                                                                                                                                                                                                                                                                        |
| 65     HIP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 65         ULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| F7         NUME         6.683         157         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421         2.421 |
| 66     5/5411W     -4646     207     2.333     2.333       7     5/541W     -3.646     207     2.333     2.333       7     5/541W     -3.646     207     2.075     2.075       7     5/541W     -1.772     1.774     1.774     1.774       7     5/541W     -1.772     1.772     1.774     1.774       7     1001     5.033     0.0     1.2075     2.028       7     1100     5.033     0.0     1.035     1.712       7     1100     5.033     0.0     1.035     1.712       7     1100     5.033     0.0     1.724     1.714       7     1100     5.033     0.0     1.035     1.712       7     1101     1000     1.033     0.0     1.033       8     0.015     1.00     0.0     0.0     0.0       8     0.015     0.0     0.0     0.0     0.0       8     0.015     0.0     0.0     0.0     0.0       9     0.0     0.0     0.0     0.0     0.0       9     0.0     0.0     0.0     0.0     0.0       9     0.0     0.0     0.0     0.0                                                                                                                                                                                                                                                                                                                                       |
| 65     535HIM    287     571     5.005     5.005       77     1001    287     571     1.772     773       77     1001    0187     0.717     1.772     765     1.772       75     1.481    0187     0.717     1.772     765     1.772       7     1.481    0187     0.717     1.855     1.925       7     1.481    0187     0.717     1.855     1.821       7     1.481    0187     0.717     1.855     1.821       7     1.481    0187     0.717     1.855     1.821       7     1.481    0187     0.712     1.821     1.821       7     1.481    0187     0.712     1.821     1.821       7     1.481    018     0.112     1.821     1.821       8     0.465108     0.112     0.112     0.112     0.112       8     0.465108     0.11     0.112     0.112     0.112       8     0.465108     0.11     0.112     0.112     0.112       8     0.465108     0.11     0.11     0.112     0.112       8     0.465108     0.11     0.11     0.11     0.112                                                                                                                                                                                                                                                                                                                           |
| 77         535HIN         3.575         523         1.51         1.51           72         535HIN         3.571        035         0.51         1.51         1.51           72         UNN        035         0.51         1.772         1.772         1.772           73         LEBON        035         0.51         1.772         1.772         1.772           75         LEBON        0355         0.51         1.821         1.821         1.772           75         LEBON        0355         0.51         1.821         1.821         1.821           75         CHESTIGN         0.         0.101         1.821         1.821         0.755           75         CHESTIGN         0.         0.102         0.817         0.817         0.817           75         CHESTIGN         0.         0.102         0.755         0.755         0.755           75         CHESTIGN         0.0         0.1021         1.821         0.755         0.755           75         CHESTIGN         0.0         0.1021         1.821         0.755         0.755           75         CHESTIGN         0.755         0.755         0.755                                                                                                                                          |
| 7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7     7                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 72     J.M.     3.837     -1.772     1.772     1.772       73     LINU     -0.035     0.035     1.772     1.875     1.772       73     LINU     -0.035     0.035     0.035     1.825     1.825       73     LINU     -0.035     0.035     1.825     1.825     1.825       73     CHESTIMT     -1.772     1.855     1.825     1.825       74     CHESTIMT     -1.966     0.0     0.0     0.0     0.0       73     CHESTIMT     -1.72     1.855     1.825     1.825       74     CHESTIMT     -1.966     0.0     0.0     0.0     0.0       75     CHESTIMT     1.966     0.0     0.0     0.0     0.0       75     CHESTIMT     0.0     0.0     0.0     0.0                                                                                                                                                                                                                                                                                                  |
| 7.3     UMM     -1.555     0.7     1.655     2.028       7.5     LADM     -0787     0.7     1.655     2.028       7.7     CHESIMT     1963     0.7     1.655     1.201       7.7     CHESIMT     33.7     0.     0.7     1.655     0.       7.7     CHESIMT     33.7     0.     0.7     1.055     1.821     1.821       7.7     CHESIMT     33.7     0.     0.7     4.035     1.821     1.871       7.7     CHESIMT     33.7     0.     0.     33.75     0.     0.       8.8     CHESIMT     33.7     0.     0.     0.     0.7     1.855       8.8     CHESIMT     33.7     0.     0.     0.     0.       8.8     CHESIMT     33.7     0.     0.     0.     0.       8.8     CHESIMT     337     352     356     356       9.8     CHESIMT     337     0.     0.     0.       9.8     CHESIMT     3.37     337     0.     0.       9.8     CHESIMT     3.37     337     36.7     0.       9.8     CHESIMT     3.37     36.7     0.     0.       9.8                                                                                                                                                                                                                                                                                                                             |
| 7.7         LARU         5.038         0.0187         1.928         1.928           7.6         CHESTIMT         5.038         0.0187         1.928         1.929           7.7         CHESTIMT         5.038         0.0187         1.821         1.821           7.6         CHESTIMT         5.038         0.01         3.37         0.01         0.0131           81         CHESTIMT         3.37         0.01         0.01         0.0131         1.821           81         CHESTIM         3.37         0.01         0.01         0.0131         1.821           81         CHESTIM         3.366         0.01         0.01         0.01         0.01         0.01           81         CHESTIM         3.366         0.01         0.01         0.01         0.01           81         CHESTIM         3.366         0.01         0.01         0.01         0.01           81         CHESTIM         3.366         0.01         0.01         0.01         0.01           82         CHESTIM         3.366         0.01         0.01         0.01         0.01           82         CHESTIM         3.366         0.01         0.01         0.01                                                                                                                       |
| 75         LARM        0787         0.         1.025         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         1.021         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.         0. <th0.01< th=""></th0.01<>                                                                            |
| 77     HAND     6.339     0.     1.821     1.821     1.821       7     CHESTIMT     33.7     0.     0.     0.     0.     0.     0.       81     CHESTIMT     33.7     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMT     33.7     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMT     33.7     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMT     10.     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMT     10.     0.     0.     0.     0.     0.     0.       82     CHESTIMT     0.     0.     0.     0.     0.     0.     0.       82     CHESTIMT     0.     0.     0.     0.     0.     0.     0.       83     CHESTIMT     0.     0.     0.     0.     0.     0.     0.       84     CHESTIMT     0.     0.     0.     0.     0.     0.     0.       84     0.     0.     0.     0.     0.     0.     0.     0.       84                                                                                                                                                                                                                                                                                                                                                                 |
| 71     CHESTIMI     317     0.     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMI     317     0.     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMI     317     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMI     317     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMI     317     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMI     317     0.     0.     0.     0.     0.     0.     0.       81     CHESTIMI     317     0.     0.     0.     0.     0.     0.       82     CHESTIMI     316     356     356     356     356     356       81     CHESTIMI     1.57     373     0.     0.     0.     0.       82     CHESTIMI     0.     0.     0.     0.     0.     0.       82     CHESTIMI     0.     0.     0.     0.     0.     0.       82     CHESTIMI     0.     0.     0.     0.     0.     0.                                                                                                                                                                                                                                                                                                                                                              |
| 73     CHESTIGN     33.7     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0                                                                                                                                                                                                                                                                                  |
| 0. CHESTOR     275       0. CHESTOR     276       0. CHESTOR     273       0. CHESTOR     274       0. CO                                                                                                                                                                                                                                                                                                                                       |
| 0.00000000000000000000000000000000000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 21       CHESTGR 1.575       275       357         83       CHESTGR 2.765       355       355         84       CHESTGR 2.765       355       355         85       CHESTGR 2.765       355       355         84       CHESTGR 2.765       355       355         85       CHESTGR 2.765       355       355         89       CHESTGR 2.765       355       218         89       CHESTGR 2.765       352       218         89       CHESTST 1.575       2739       00         81       CHESTST 1.575       2739         82       CHESTST 1.575       2739         83       CHESTST 1.575       2739         84       COMMAT       0.0       0.0         85       CCOMAT       0.0       0.0         86       CCOMAT       0.0       0.0         87       COMAT       0.0       0.0         86       CCOMAT       0.0       0.0         86       CCOMAT       0.0       0.0         87       0.0       0.0       0.0         86       CCOMAT       0.0       0.0         80.55       COMAT       0.0                                                                                                                                                                                                                                                                                |
| 0       0       0       0       0       0       0         0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0       0       0       0         0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0                                                                                                                                                                                                                                                                                                                                                 |
| 41       CHESTGR 0.100       100         85       CHESTGR 1.675       335         88       CHESTGR 1.675       335         88       CHESTGR 2.756       218         89       CHESTGR 2.756       218         80       CHESTGR 2.756       218         81       CHESTGR 2.756       218         82       CHESTGR 2.756       218         83       CHESTGR 2.756       218         84       CHESTGR 2.756       218         82       CHESTST 1.85       230         83       CHESTST 2.756       5347         83       CHESTST 2.756       5347         84       CHESTST 2.756       5347         83       CHESTST 2.756       5347         84       CHESTST 2.756       5347         85       COR       0       0         86       COSTAT 0.0       0       0         86       COSTAT 1.2       23472         80       FCOR <t< td=""></t<>                                                                                                                                                                                                                                                              |
| 6       CHESTGR 104       06       352         8       CHESTGR 165       352       352         8       CHESTGR 165       352       352         8       CHESTGR 165       352       352         9       CHESTGR 165       352       354         9       CHESTGR 165       353       354         9       CHESTGR 165       353       354         9       CHESTGR 165       394       1101         9       CHESTGR 165       394       1101         9       CHESTGR 157       334       1001         9       CHESTGR 157       334       0       0         9       CHESTGR 157       334       0       0       0         9       CHESTGR 157       333       0       0       0       0         9       CHESTGR 157       333       0       0       0       0       0         9       CHESTGR 1       0       0       0       0       0       0       0         9       CHESTGR 1       10       0       0       0       0       0       0       0       0         9       CO       0                                                                                                                                                                                                                                                                                               |
| 6       CHESTGR 1.076       352         8       CHESTGR 1.076       352         8       CHESTGR 1.076       352         8       CHESTGR 2.756       318         9       CHESTST 2.756       394         9       CHESTST 2.756       5947         9       CHESTST 2.756       5947         9       CHESTST 2.756       5947         9       CHESTST 2.766       300.76         9       ECOMM       0.0         9       ECOMM       1.0         9       ECOMM       0.0         9       ECOMM       1.0         9       ECOMM       1.0         9       ECOMM       1.0         <                                                                                                                                                                                                                                                                                                                         |
| 97       CHESTER 1.675       .359         98       CHESTER 1.675       .218         99       CHESTES 104       0         91       CHESTES 104       1901         92       CHESTES 1.575       2739         93       CHESTES 1.575       2739         94       ECOMAT       0.0         95       ECOMAT       0.0         95       ECOMAT       0.0         95       ECOMAT       0.0         95       ECOMAT       0.0         96       ECOMAT       0.0         97       ECOMAT       0.0         98       ECOMAT       0.0         99       ECOMAT       0.0         91       ECOMAT       0.0         92       CHESTAT       0.0         93       ECOMAT       0.0         94       ECOMAT       0.0         95       ECOMAT       0.0         96       ECOMAT       0.0         97       ECOMAT       0.0         98       ECOSTAT       0.0         99       ECOSTAT       0.0         90       ECOMAT       0.0         91       0.0                                                                                                                                                                                                                                                                                                                                      |
| 89       CHESTER 1.756       2.04         91       CHESTER 1.575       2.194         92       CHESTER 1.575       2.736         93       CHESTER 1.575       2.736         94       CHESTER 1.575       2.736         95       CHESTER 1.575       2.736         95       CHESTER 1.575       2.736         95       COMAT       0.0       0.0         95       COMAT       3.37       3.9.76         95       COMAT       3.37       0.0       0.0         95       COMAT       3.37       0.0       0.0       0.0         95       COMAT       3.37       0.0       0.0       0.0       0.0         96       COMAT       3.37       0.0       0.0       0.0       0.0       0.0         97       COMAT       3.37       3.8.75       0.0       0.0       0.0       0.0         98       COMAT       3.300       0.0       0.0       0.0       0.0       0.0         98       COMAT       3.4.9       10.1       1.6.1       1.6       0.0       0.0         100       COMAT       3.6.16       1.6.1       1.6.1       0.                                                                                                                                                                                                                                                     |
| 90       CHESTST 0.00       0.10         91       CHESTST 394       1191         92       CHESTST 394       1191         93       CHESTST 394       1965         94       ECOMAT       0.0       0.0       0.0         95       CHESTST 2.756       5947       0.0       0.0       0.0         94       ECOMAT       0.0       0.0       0.0       0.0       0.0         95       ECOMAT       0.0       0.0       0.0       0.0       0.0       0.0         97       ECOMAT       0.0       0.0       0.0       0.0       0.0       0.0       0.0         97       ECOMAT       0.0       0.0       0.0       0.0       0.0       0.0       0.0         98       ECOMAT       1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0         99       ECOMAT       1.0       1.0       0.0       0.0       0.0       0.0       0.0       0.0         91       ECOMAT       1.0       1.0       1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0 <td< td=""></td<>                                                                                                                                                                                                                                    |
| 90       CHESTST 394       1191         91       CHESTST 1575       2739         92       CHESTST 1575       5739         93       CHESTST 1575       5739         94       EC3MAT       0       0       0       38.37       38.76       0       0         95       EC3MAT       0       0       0       0       0       0       0       0         97       EC3MAT       0       0       0       0       0       0       0       0       0         97       EC3MAT       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0                                                                                                                                                                                                                                                                                              |
| 91       CHESTST 1657       1765       1964         92       CHESTST 1575       2739       0       0       39.37       39.76       0       0         95       EC3MAT       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0         95       EC3MAT       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0                                                                                                                                                                                          |
| 92       CHESTST 1.575       2730         93       CHESTST 2.756       5947       0       0       0       0       0       0       0         95       EC3GR       -1       03       0       0       0       0       0       0       0         95       EC3GR       -1       03       0       0       0       0       0       0       0         95       EC3GR       -1       03       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td< td=""></td<>                                                                                                                                                                                                                                                                                |
| 93       CHESTST 2.756       5947.       0.       0.       39.37       39.37       0.       0.         93       EC3MAT       0.       0.       0.       0.       0.       0.       0.       0.         93       EC3MAT       1.       .01       0.       0.       0.       0.       0.       0.       0.         93       EC3MAT       1.       .01       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0. <t< td=""></t<>                                                                                                                                                                                                                            |
| 84       EC3MAT       0.       0.       30.37       0.       0.       0.       30.37       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.                                                                                                                                                                                                                             |
| 95       EC3MAT       3.37       0.       0.       6.5351AT       1       6.6351AT       1       6.0351AT       1                                                                                                           |
| 96       EC3GR -1       .08         97       EC3GIR -1       .01         98       EC3STAT 1.5       530         99       EC3STAT 1.5       530         99       EC3STAT 1.5       530         99       EC3STAT 1.5       530         99       EC3STAT 3.0       1359         100       EC3STAT 3.0       1359         101       EC3STAT 3.0       1359         102       EC3STAT 3.0       1359         103       EC3STAT 3.0       1359         103       EC3STAT 12       22472         103       I       -1       0         103       I       -1       0         103       I       -1       0         104       HVBR10 3 DUMMY       0       0         105       74.9       101.2       115.4         106       0       0       0       22.5         108       0       0       0       0         109       0       0       0       11         110       ILDOR       MATFL       MATFL       11         111       INST PARC       MATFL       0       11                                                                                                                                                                                                                                                                                                                      |
| 97 EC3GR -181<br>88 EC35TAT 005<br>89 EC35TAT 005<br>89 EC35TAT 1005<br>89 EC35TAT 1205<br>100 EC35TAT 122472.<br>102 EC35TAT 1222472.<br>103 EC35TAT 1222472.<br>104 HVBRID 3 DUMWY<br>105 74.9 101.2 115.4 154.4 15640.5 22.5 90.<br>106 74.9 101.2 115.4 154.4 15640.5 22.5 90.<br>107 -6.15 012.15 05.73 0.<br>108 VEHICLE INTERIOR<br>100 VEHICLE INTERIOR<br>111 INST PANEL MATPL<br>111 MOSHIELD MATPL<br>112 BOLSTER MATPL<br>113 WUNSHIELD MATPL<br>114 CUSHIDN MATSH<br>114 SEATBACK MATSH<br>115 SEATBACK MATSH<br>115 SEATBACK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 98       EC35TAT 0.       05         89       EC35TAT 1.8       530.         100       EC35TAT 1.8       530.         101       EC35TAT 1.8       530.         102       EC35TAT 1.2       22472.         103       EC35TAT 1.2       22472.         104       685.       0.       0.         105       HYBRID 3 DUMMY.       8.047         106       74.9       101.2       115.4         107       -6.15       0.       0.       12.15         108       0.       0.       12.15       0.       5.73       0.         109       VEHICLE INTERIOR       0.       0.       1.12.15       0.       5.73       0.         109       VEHICLE INTERIOR       0.       1.13.0       0.       1.1       1.1         110       INST PANEL       MATPAL       0.       1.1       1.1       1.1         111       INST PANEL       MATPAL       0.       1.1       1.1       1.1         111       INST PANEL       MATPAL       0.       1.1       1.1       1.1       1.1         111       INST PANEL       MATPAL       0.       1.1 <t< td=""></t<>                                                                                                                                                                                                                                 |
| 99       EC35TAT       1.5       530.         100       EC35TAT       3.       1356.         101       EC35TAT       3.       1356.         102       EC35TAT       3.       1356.         103       EC35TAT       2.       22472.         103       EC35TAT       2.       22472.         104       EG35TAT       2.       22472.         105       F4.9       101.2       115.4       154.4         105       74.9       101.2       115.4       154.4         105       74.9       101.2       115.4       150.       5.73         106       74.9       101.2       115.4       16.       -40.5       22.5       90.         107       -6.15       0.       -12.15       0.       5.73       0.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.       11.                                                                                                                                                                                                                                    |
| 100     EC35XIT 3.     1359.       100     EC35XIT 3.     1369.       101     EC35XIT 12.     2472.       102     EC35TIT 12.     22472.       103     I     -1.     0.       104     615.     0.     0.047       105     74.9     101.2     115.4       106     74.9     101.2     115.4       107     0.     0.     0.       108     0.     0.     0.       109     VEHICLE INTERIOR     MATFL     0.       110     FLOOR     MATFL     0.       111     INST PAREL     MATBCL     0.       111     UNSHIELD     MATFL     0.       112     BOLSTER     MATFL     0.       113     WINSHIELD     MATFCH     0.       114     CUSHION     0.     1.       115     SEATBACK     MATSB     0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 100     EC351AT     12.     1812.       100     EC351AT     12.     22472.       100     B.S. NO     0.     B.047       101     HYBRID 3 DUMWY.     B.047     15.4       105     74.9     101.2     115.4       106     74.9     101.2     115.4       107     -6.15     0.     12.15     0.       108     0.     0.     0.       109     VEHICLE INTERIOR     MATFL     0.       110     FLOOR     MATFL     0.       111     INST PANEL     MATFL     0.       112     BOLSTER     MATFL     0.       113     WINSHIELD     MATFL     0.       114     CUSHION     0.     1.       115     SEATBACK     MATSH     0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1     -1     0     0     0     0     0       104     685     0     0     0     0     0     0       105     74.9     101.2     115.4     154.4     16     -56.     -40.5     22.5     90.       107     -6.15     0     0     5.73     0     5.73     0     10.5     12.15     0     15.7     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5     10.5                                                                                                                                                                                                                                                                   |
| 104     685.     0.     0.     8.047       105     HYBRID 3 DUMMY.     8.047       106     74.9     101.2     115.4     18.4       107     -6.15     0.     12.15     0.     5.73     0.       109     -6.15     0.     0.     12.15     0.     5.73     0.       109     VEHICLE INTERIOR     0.     0.     12.15     0.     5.73     0.       109     VEHICLE INTERIOR     0.     0.     12.15     0.     5.73     0.       110     FLOOR     0.     0.     1.     1.     1.       111     INST PANEL     MATPAL     0.     1.     1.       111     INST PANEL     MATBOL     0.     1.     1.       112     EQUESTER     MATBOL     0.     1.     1.       113     WINDSHIELD     MATBOL     0.     1.     1.       115     SEATBACK     MATSB     0.     1.     1.                                                                                                                                                                                                                                                                                                                               |
| 105     HYBRID 3 DUMMY     -56.     -40.5     22.5     90.       106     74.9     101.2     115.4     154.4     16.     -56.     -40.5     22.5     90.       108     0.     -12.15     0.     5.73     0.     22.5     90.       109     VEHICLE INTERIOR     0.     -12.15     0.     0.     11     11       110     FLOOR     MATFL     0.     1.     1.     1.     1.       111     INST PAREL     MATBAL     0.     1.     1.     1.       113     WINSHIELD     MATRAL     0.     1.     1.     1.       114     CUSHION     0.     1.     1.     1.     1.       115     SEATBACK     MATSH     0.     1.     1.     1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 106         74.9         101.2         115.4         184.4         18         -56         -40.5         22.5         90.           108         0         -12.15         0.         5.73         0.         22.5         90.           108         0         0         0         0.         0.         115.4         18.73         0.         22.5         90.           109         VEHICLE         INTERIOR         0.         0.         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11 <td< td=""></td<>                                                                                                                  |
| 107         -6.15         0.         -12.15         0.         8.73         0.           108         0.         0.         0.         0.         0.         0.         10.           109         VEHICLE INTERIOR         0.         8.73         0.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11.         11                                                                                         |
| 108         0.         0.         0.         0.           109         VEHICLE INTERIOR         0.         0.         0.           110         FLOOR         MATFL         0.         1.         1.           111         INST.PANEL         MATFL         0.         1.         1.           112         BOLSTER         MATBOL         0.         1.         1.         1.           113         WINDSHIELD         MATWD         0.         1.         1.         1.         1.           114         CUSHION         MATWD         0.         1.         1.         1.         1.           115         SEATBACK         MATSB         0.         1.         1.         1.         1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 109         VEHICLE INTERIOR           110         FLOOR         MATFL         0.         1.         1.           111         INST PANEL         MATFL         0.         1.         1.         1.           112         BOLSTER         MATBOL         0.         1.         1.         1.         1.           113         WINSHIELD         MATWO         0.         1.         1.         1.         1.           113         WINSHIELD         MATWO         0.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.                                                                                                                                   |
| 110         FLOOR         MATFL         0.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1. <th1.< th="">         1.         &lt;</th1.<>                                                                                                   |
| 111         INST.PANEL         MATDASH         0.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1. <th1.< th=""> <th1.< th="">         1.</th1.<></th1.<>                                                                                              |
| 112         BOLSTER         MATBOL         0.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1.         1. <th1.< th=""> <th1.< th="">         1.</th1.<></th1.<>                                                                                                  |
| 113 WINSHIELD MATWD 0. 1. 1. 1.<br>114 CUSHION MATCH 0. 1. 1. 1.<br>115 SEATBACK MATSH 0. 1. 1. 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 115 SEATBACK MATSB 0. 1. 1. 1. 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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#### Listing of DOTVW31 at 17:38:41 on FEB 4, 1988 for CCId=SWLN on Um

| 117 | STEERING WHEEL | MATSTW |            | Ο.         | 1.      | 1.                 | 1.         |        |
|-----|----------------|--------|------------|------------|---------|--------------------|------------|--------|
| 118 | FLOOR          | 2.     | 4.         | 1.         | 0.      | 0.                 |            |        |
| 119 | INST.PANEL     | 2.     | 2.         | 1.         | Ο.      | Ο.                 |            |        |
| 120 | BOLSTER        | 1.     | 2.         | 1.         | Ο.      | Ο.                 |            |        |
| 121 | WINDSHIELD     | 1.     | 1.         | 1.         | Ο.      | Ο.                 |            |        |
| 122 | CUSHION        | 1.     | З.         | 1.         | Ο.      | Ο.                 |            |        |
| 123 | SEATBACK       | 1.     | 2.         | 1.         | 0.      | Ο.                 |            |        |
| 124 | ROOF           | 1.     | 2.         | 1.         | Ο.      | Ο.                 |            |        |
| 125 | STEERING WHEEL | 1.     | 5.         | 1.         | Ó.      | 0.                 |            |        |
| 126 | MATEL          | 0.     | Õ.         | <b>o</b> . | 1000.   | 2000.              | 2400.      | 8000.  |
| 127 | MATDASH        | Õ.     | 0.         | õ.         | 1000.   | 2000.              | 0.         | 0.     |
| 128 | MATBOI         | 0      | 0.         | ō.         | 1000    | 2000.              | <b>0</b> . | Ō.     |
| 129 | MATWO          | 0      | 0          | 0.         | 1000    | 2000               | <b>0</b> . | 0.     |
| 130 | MATCH          | ŏ.     | 0          | 0          | 1000    | 2000               | <u>o</u> . | 0      |
| 121 | MATSR          | 0.     | 0.         | ŏ.         | 1000    | 2000               | 0          | 0      |
| 122 | MATDE          | 0.     | 0.         | 0.         | 1000    | 2000               | 0.         | 0      |
| 132 | MATCTH         | 0.     | 0.         | 0.         | 1000.   | 2000.              | 0.         | 0.     |
| 133 | MAISIW         | 0.     | 0.         | 0.         | 1000.   | ELETAT             | U.         | ELCD   |
| 134 | MATEL          | 2.     | 0.         | <b>0</b> . | o'      | FLJIAI<br>DACUETAJ | INCRE      |        |
| 135 | MATUASH        | 2.     | 0.         | 0.         | 0.      | DASISTAT           | INERA      | DASHOK |
| 136 | MATBUL         | 2.     | 0.         | 0.         | 0.      | BULSTAT            | INERZ      | BULGR  |
| 137 | MATWD          | 2.     | 0.         | 0.         | 0.      | WUSTAT             | INEWZ      | WUGR   |
| 138 | MATCH          | 2.     | 0.         | 0.         | 0.      | CHSIAI             | INERZ      | CHGR   |
| 139 | MATSB          | 2.     | 0.         | 0.         | 0.      | SRZIVI             | INERZ      | SBGR   |
| 140 | MATRF          | 2.     | 0.         | 0.         | 0.      | RESIAT             | INERZ      | RFGR   |
| 141 | MATSTW         | 2.     | 0.         | Ο.         | Ο.      | STWSTAT            | INERZ      | STWGR  |
| 142 | FLGR -1.       | . 2    |            |            |         |                    |            |        |
| 143 | FLGR -1.       | .2     |            |            |         |                    |            |        |
| 144 | DASHGR -1.     | . 8    |            |            |         |                    | •          |        |
| 145 | DASHGR -1.     | .08    |            |            |         |                    |            |        |
| 146 | BOLGR -1.      | . 8    |            |            |         |                    |            |        |
| 147 | BOLGR -1.      | . 08   |            | •          |         |                    |            |        |
| 148 | WDGR -1.       | . 95   |            |            |         |                    |            |        |
| 149 | WDGR -1.       | .01    |            |            |         |                    |            |        |
| 150 | CHGR -1.       | . 1    |            |            |         |                    |            |        |
| 151 | CHGR -1.       | . 85   |            |            |         |                    |            |        |
| 152 | SBGR -1.       | . 1    |            |            |         |                    |            |        |
| 153 | SBGR -1.       | . 85   |            |            |         |                    |            |        |
| 154 | RFGR -1.       | . 5    |            |            |         |                    |            |        |
| 155 | RFGR -1.       | . 5    |            |            |         |                    |            |        |
| 156 | STWGR -1.      | .95    |            |            |         |                    |            |        |
| 157 | STWGR -1.      | .05    |            |            |         |                    |            |        |
| 158 | FLSTAT -1.     | 800.   |            |            |         |                    |            |        |
| 159 | DASHSTAT-1.    | 441.24 | - 109 . 64 | 9.3813     | 0.17045 |                    |            |        |
| 160 | BOLSTAT O      | 0      |            |            | •••••   |                    |            |        |
| 161 | BOLSTAT 6      | 5400   |            |            |         |                    |            |        |
| 162 | WDSTAT -1      | 2000   |            |            |         |                    |            |        |
| 163 | CHSTAT -1      | 122    | 37 6       | -74 48     | 22 16   |                    |            |        |
| 164 | SESTAT -1      | 14     | -9         | 14         | -4      | •                  |            |        |
| 165 | STUSTAT O      | 0      | •.         | • • •      |         | ••                 |            |        |
| 166 | STWSTAT 4      | 1562   |            |            |         |                    |            |        |
| 167 | STWOTAT AG     | 1002.  |            |            |         |                    |            |        |
| 107 | STWOTAT EI     | 10/0.  |            |            |         |                    |            |        |
| 108 | 51W51A1 .01    | 2300.  |            |            |         |                    |            |        |
| 109 | SINCIAL A R    | 18/3.  |            |            |         |                    |            |        |
| 170 | SINSTAT D.A    | 1002.  |            |            |         |                    |            |        |
| 1/1 | 51851A1 2.4    | 1000.  |            |            |         |                    |            |        |
| 172 | SIWSIAL J.V    | 750.   |            |            |         |                    |            |        |
| 173 | SIWSIAI U.     | 150.   |            |            |         |                    |            |        |
| 1/4 | 21821A1 10.    | 100007 |            |            |         |                    |            |        |

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Listing of DOTVW31 at 17:38:41 on FEB 4, 1988 for CCid=SWLN on UM

|   | 175   | RFSTAT   | Ο.       | Ο.          |         |              |            |          |        |       |
|---|-------|----------|----------|-------------|---------|--------------|------------|----------|--------|-------|
|   | 176   | RESTAT   | 2        | 2000        |         |              |            |          |        |       |
|   | 177   | RESTAT   | 3        | 13000       |         |              |            |          |        |       |
|   | 178   | INED7    | - 1      | 0           |         |              |            |          |        |       |
|   | 170   | EL OOD   | -••      | 51 00D      |         | 20           | 25         |          |        |       |
|   | 1/9   | TOTRAL   |          | FLOOR       |         | 20.          | . 23       |          | 1.     |       |
|   | 180   | TOFBOAR  | )        | FLOOR       |         | 20.          | . 25       | 1.       | 2.     |       |
|   | 181   | BOLSTER  |          | BOLSTER     |         | 4.           | . 25       | 1.       | 1.     |       |
|   | 182   | MIDDLED  | 1        | INST.PA     | NEL     | 4.           | . 25       | 1.       | 1.     |       |
|   | 183   | UPPERDH  |          | INST.PA     | NEL     | 4.           | . 25       | -1.      | 2.     |       |
|   | 184   | WINDSHIE | ELD      | WINDSHI     | ELD     | 1.           | . 25       | 1.       | 1.     |       |
|   | 185   | CUSHION  |          | CUSHION     |         | 20.          | . 25       | 1.       | 1.     |       |
|   | 186   | SEATRACK | e        | SEATBAC     | ĸ       | 20           | 25         | 1.       | 1.     |       |
|   | 187   | ROOF     | -        | ROOF        |         | 4            | 25         |          | 1      |       |
|   | 188   | STEEDIM  |          | STEEDIM     |         | 2            | 25         |          |        |       |
|   | 180   | ELOOD    | AWHELL   | 4           | a which | <b>~</b> ·   |            | •.       | •.     |       |
|   | 109   | FLOOR    |          |             |         |              |            |          |        |       |
|   | 190   | TUEBUARL |          | 1.          |         |              |            |          |        |       |
|   | 191   | BOLSTER  | 2        | 1.          |         |              |            |          |        |       |
|   | 192   | MIDDLEDH | 1        | 1.          |         |              |            |          |        |       |
|   | 193   | UPPERDH  |          | 1.          |         |              | •          |          |        |       |
|   | 194   | WINDSHIE | ELD      | 1.          |         |              |            |          |        |       |
|   | 195   | CUSHION  |          | 1.          |         |              |            |          |        |       |
|   | 196   | SEATBACH | (        | 1.          |         |              |            |          |        |       |
|   | 197   | ROOF     |          | 1           |         |              |            |          |        |       |
|   | 198   | STEEDING |          |             |         |              |            |          |        |       |
|   | 100   | EL OOD   | a wincer |             | - 48    | 12.2         | 20 7       | 12 2     |        |       |
|   | 189   | TOTOCADO |          | -1.         | - 10.   | 12.3         | 20.7       | 12.3     |        |       |
|   | 200   | TUEBUARD |          | -1.         | 29.7    | 12.3         | 39.2       | 0.       |        |       |
|   | 201   | BOLSTERL | )        | -1.         | 17.5    | - 10.        | 24.7       | 2.5      |        |       |
|   | 202   | MIDDLEDH | +        | -1.         | 19.7    | -6.3         | 21.1       | - 18 . 8 |        |       |
|   | 203   | UPPERDH  |          | -1.         | 21.1    | - 18 . 8     | 32.        | - 16.2   |        |       |
|   | 204   | WINDSHIE | ELD      | -1.         | 32.     | - 16 . 2     | 15.3       | -30.9    |        |       |
|   | 205   | CUSHION  |          | -1.         | -8.     | 5.           | 16.5       | -2.5     |        |       |
|   | 206   | SEATBACK | c        | -1.         | -3.4    | 5.           | -14.2      | -20.     |        |       |
|   | 207   | ROOF     |          | - 1         | 16      | -32.9        | - 16       | -32.9    |        |       |
|   | 208   | STEEPING | WHEEL    | - 1         | 9 7     | -6 7         | 16 6       | -20      | •      |       |
|   | 200   | 4        | 4        | <b>^'</b> . | •       | 0.1          |            | 20.      |        |       |
|   | 209   |          | 1.       | <u>,</u>    |         |              |            |          |        |       |
|   | 210   | 1.       | 4.       | . /         | ~       |              |            |          |        |       |
|   | 211   | 1.       | 3.       | .2          | 0.      |              |            |          |        |       |
| • | 212   | 1.       | 4.       | .8          | . 15    |              |            |          |        |       |
|   | 213   | 1.       | 5.       | 1.          |         |              |            |          |        |       |
|   | 214   | 1.       | 6.       | 1.          |         |              |            |          |        |       |
|   | 215   | CRASH 44 | 1.5 FT/S | EC          |         |              |            |          |        |       |
|   | 216   | Ο.       | 44.5     | <b>O</b> .  | Ο.      | Ο.           | <b>O</b> . | 0.       | 0.     | Ο.    |
|   | 217   | 17.      | 1.       | Ο.          |         |              |            |          |        |       |
|   | 218   | 0        | 0        | 5           | - 1     | 7            | -5         | 22       | -8     |       |
|   | 210   | 30       | -22      | 25          | - 22    | 28 28        | -45 28     | 47       | - 20   |       |
|   | 210   | SU.      | - 20     | 55.         | - 10    | 56.25        |            | 77.      | 30.    |       |
|   | 220   | 55.      | -30.     | <b>B</b> U. | -10.    | 00.          | 0.         | 10.      | -0.    |       |
|   | 221   | 90.      | -12.     | 95.         | -3.     | 110.         | -3.        | 135.     | 0.     |       |
|   | 222   | 200.     | U.       |             |         |              |            |          |        |       |
|   | 223   | PASSIVE  | IORSO B  | ELT         |         |              |            |          |        |       |
|   | 224   | BELT     |          | Ο.          | Ο.      | Ο.           | 1000.      | 2000.    | Ο.     | Ο.    |
|   | 225   | BELT     |          | 20.         | Ο.      | <b>o</b> . · |            | BLTST    | BINERZ | BLTGR |
|   | 226   | BLTGR    | -1.      | .05         |         |              |            |          |        |       |
|   | 227   | BLTGR    | -1.      | . 95        |         |              |            |          |        |       |
|   | 228   | BLIST    | 0.       | 0.          |         |              |            |          |        |       |
|   | 228 1 | BLIST    | 033      | 1000        |         |              |            |          |        |       |
|   | 228 2 | BITCT    | 128      | 2500        |         |              |            |          |        |       |
|   |       | BITCT    |          | 7416        |         |              |            |          |        |       |
|   | 228.3 | 01131    |          | 7410.       |         |              |            |          |        |       |
|   |       |          |          |             |         |              |            |          |        |       |

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Listing of D0IVW31 at 17:38:41 on FEB 4, 1988 for CC1d+SMLN on UM

| 229.01 | H310P        |             | 0          | 0       | o.     | 1000. | 2000. | ō      | Ö      |
|--------|--------------|-------------|------------|---------|--------|-------|-------|--------|--------|
| 229.02 | <b>HOTCH</b> |             | 20.        | 0.      | o      |       | TOPST | RINFD7 | RI TCD |
| 229.03 | TOPST        | o           | .0         |         |        |       |       |        |        |
| 229.04 | TOPST        | <b>9</b> 0. | 1000.      |         |        |       |       |        |        |
| 229.05 | 10PS1        | .07         | 6000       |         |        |       |       |        |        |
| 229.06 | <b>H3BOT</b> |             | 0          | 0       | °.     | 1000. | 2000  | c      | c      |
| 229.07 | <b>108CH</b> |             | 20.        | 0       | c      |       | ROIST | BINED7 | BI TCO |
| 229.08 | 80151        |             | 8534       |         |        |       |       |        |        |
| 230    | 2.15         | 2.4         | - 16.3     | -21.3   | 10.1   | BELT  |       | HITOP  |        |
| 231    | 12.          | <b>9</b> .0 | -7.2       | 10.6    |        | BELT  |       | HARDT  |        |
| 232    | Э.           | -           |            | 6.57    | c      |       | -     |        |        |
| 233    |              |             |            | -       |        | 50000 |       |        |        |
| 234    | З.           | С           | 0          | 0       |        |       |       | c      |        |
| 235    | 8.           | 8           | 0          | Ċ       | Ċ      | Ċ     | i c   | 5      |        |
| 236    |              |             |            | ;       | ;      |       | \$    |        |        |
| 237    |              |             |            |         |        |       |       |        |        |
| 1001   | 0.1.4-       | 17.21-3     | 2.37.40.46 | 3-50.45 |        |       |       |        |        |
| 1002   | 0            | 0           | 0          | 13.5    | 0.015  |       |       |        |        |
| 1003   | <b>1</b> 0.  | 60.         | 110.3      |         | 085    | 100   | ť     | ť      |        |
| 1004   | 0            | ò           | .06-       | 60.     | - 20 - | 20.   | ar    | ic     |        |
| 1005   | 21.          | o           | 9          |         | 0      | 0     |       | òd     | 10     |
| 1006   |              |             |            |         |        | ,     | :     |        |        |

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# APPENDIX B

## THREE-POINT BELT SYSTEM BASELINE DATA SET

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|            | С.<br>Б<br>О                                                                                                                          | 0-0-0                                                   | 3 - 687<br>1434<br>00087<br>755<br>775<br>775<br>775<br>775<br>775<br>775<br>775<br>775<br>7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | - <b>6 6</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | _ 8                                                                                                                                   | 000-0                                                   | 1 1 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9 -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| LN on UM   | n <u>o</u>                                                                                                                            | 000-0                                                   | 10.3<br>5.143<br>5.143<br>.0226<br>.0226<br>.0226<br>.204<br>.204<br>.205<br>.305<br>.305                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.575<br>246.<br>- 36.5<br>- 36.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| cc td=SW   | 0 120                                                                                                                                 | 000-0                                                   | 9.45<br>3.0635<br>400.45<br>400.40<br>400.40<br>100.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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                                                                                                                                                                                                                                              |
| 188 for    | 00                                                                                                                                    |                                                         | 15.815<br>9.445<br>9.445<br>1.202<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>17.394<br>1884<br>17.394<br>1884<br>1884<br>1884<br>1884<br>1884<br>1884<br>1884<br>18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3 4. 15    | NHEEL<br>NHEEL<br>NHEEL<br>NHEEL<br>NHEEL                                                                                             |                                                         | 722<br>306<br>0684<br>238812<br>39812<br>39812<br>39812<br>68981<br>68981<br>68981                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| :12 on FEE | 32.174 (<br>FLOOR<br>SEATBACK<br>STEERING<br>STEERING<br>STEERING<br>CUSHION<br>STEERING<br>STEERING<br>BOLSTER<br>BOLSTER<br>BOLSTER | INST PANE<br>WINDSHIEL<br>1.<br>0.<br>0.<br>0.          | 5.109 3<br>2.55 2<br>2.55 2<br>2.55 2<br>0.00<br>0.1428<br>1.142355<br>0.00<br>1.14522860<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.00648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.000648400<br>0.00064800<br>0.00064800<br>0.00064800<br>0.00064800<br>0.00064800000000000000000000000000000000 | 0.<br>0.<br>1.1.2<br>0.<br>1.1.2<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| at 22:12   | ç g ç                                                                                                                                 |                                                         | 11.573<br>6.165<br>0.098<br>1.817<br>123.961<br>123.961<br>123.961<br>123.961<br>123.961<br>123.961<br>123.961<br>100.<br>0.<br>20.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0.<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.<br>17.11.2<br>- 11.2<br>6.2<br>50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| DOTVW4     | D017W4<br>1.<br>1.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.<br>2.                                      | HEAD<br>HEAD<br>0.<br>                                  | . 477 5.<br>1.663<br>. 0258<br>44.236<br>884.235<br>884.236<br>884.40655<br>84.40655<br>12.1914.12<br>12.1914.12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 684.95<br>4.061<br>4.061<br>14.061<br>14.061<br>14.061<br>14.081<br>14.098<br>11.189<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18<br>11.18 |
| Listing of | - ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~                                                                                               | 8 8 7 3 3 7 - 0 8<br>8 8 7 3 7 - 0 8<br>8 8 7 9 7 9 7 9 | 8 8 7 8 8 7 7 7 7 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8 8 7 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4 4 4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| 59    | LARM            |           |        | 8.       | 1.    |         |       |         | 219 |
|-------|-----------------|-----------|--------|----------|-------|---------|-------|---------|-----|
| 60    | HAND            | EC3MAT    |        | 8.       | 1.    |         |       |         | 219 |
| 61    | HEAD            | . 276     | 039    | 4.4      | 3.907 |         |       |         | 220 |
| 62    | CHEST           | -1.299    | Ο.     | 4.872    | 4.528 |         |       |         | 220 |
| 63    | SLDR            | -5.187    | Ο.     | . 984    | 2.559 |         |       |         | 220 |
| 64    | MID-TORSO       | -2.047    | -1.063 | 4.331    | 4.331 |         |       |         | 220 |
| 65    | HIP             | .866      | . 63   | 4.134    | 4.134 |         |       |         | 220 |
| 66    | ULEG            | 394       | . 591  | 8.346    | 2.953 |         |       |         | 220 |
| 67    | KNEE            | 6.693     | . 157  | 2.421    | 2.421 |         |       |         | 220 |
| 68    | SISHIN          | -4.646    | .287   | 2.323    | 2.323 |         |       |         | 220 |
| 69    | S2SHIN          | 287       | . 571  | 2.075    | 2.075 |         |       |         | 220 |
| 70    | SASHIN          | 3.575     | 528    | 1.61     | 1.61  |         |       |         | 220 |
| 71    | FOOT            | 6.811     | 055    | 4.724    | 4.724 |         |       |         | 220 |
| 72    | JAW             | 3.937     | -1.772 | .787     | 1.772 |         |       |         | 220 |
| 73    | UARM            | -1.535    | 0.     | 4.665    | 2.028 |         |       |         | 220 |
| 74    | ELBOW           | 5.039     | .0787  | 1.929    | 1.929 |         |       |         | 220 |
| 75    | LARM            | 0787      | 0.     | 4.035    | 1.821 |         |       | •       | 220 |
| 76    | HAND            | 6.339     | Õ.     | 1.821    | 1.821 |         |       |         | 220 |
| 11    | CHESTMAT        | . 1969    | .866   | 0.       | 39.37 | 39.76   | ο.    | Ο.      | 221 |
| 78    | CHESTMAT        | 33.7      | 0.     | Õ.       | 0.    | CHESTST | ĩ     | CHESTGR | 222 |
| 79    | CHESTOR O       | 0.        | •••    | •••      | •••   |         | -     |         | 223 |
| 80    | CHESTGR . 394   | .2        |        |          |       |         |       |         | 223 |
| 81    | CHESTGR 866     | 275       |        |          |       |         |       |         | 223 |
| 82    | CHESTGR 1 575   | 275       |        |          |       |         |       |         | 223 |
| 83    | CHESTOR 2 756   | 357       |        |          | -     |         |       |         | 223 |
| 84    | CHESTOR O       | 1         |        |          |       |         |       |         | 224 |
| 85    | CHESTOR 394     | 48        |        |          |       |         |       |         | 224 |
| 86    | CHESTOP AGE     | 356       |        |          |       |         |       |         | 224 |
| 97    | CHESTOP 1 878   | 362       |        |          |       |         |       |         | 224 |
| 88    | CHESTOR 2 756   | 218       |        |          |       |         |       |         | 224 |
| 89    | CHESTST O       | 0         |        |          |       |         |       |         | 226 |
| 80    | CHESTET 304     | 1101      |        |          |       |         |       |         | 225 |
| 91    | CHESTST REE     | 1965      |        |          |       |         |       |         | 225 |
| 02    | CHESTST 1 878   | 2730      |        |          |       |         |       |         | 226 |
| 93    | CHESTST 2 786   | 5947      |        |          |       |         |       |         | 225 |
| 94    | ECOMAT          | 0         | 0      | 0        | 39 37 | 39 76   | 0     | 0       | 221 |
| 95    | ECOMAT          | 3 37      | 0.     | õ.       | 0     | FCOSTAT | ĩ.    | FC3G9   | 222 |
| 96    | FC3GR -1        | 08        | 0.     | ••       | •.    | 2003171 | -     | Loodk   | 223 |
| 97    | FC3GP -1        | 91        |        |          |       |         |       |         | 224 |
| 98    | ECOSTAT O       | 05        |        |          |       |         |       |         | 225 |
| 99    | FC3STAT 1 B     | 530       |        |          |       |         |       |         | 225 |
| 100   | ECOSTAT 3       | 1359      |        |          |       |         |       |         | 225 |
| 101   | FC3STAT 3 6     | 1812      |        |          |       |         |       |         | 225 |
| 102   | FC3STAT 12      | 22472     |        |          |       |         |       |         | 226 |
| 103   | I -1            | 0         |        |          |       |         |       |         | 226 |
| 104   | 685 0           | 0.        | 9 047  |          |       |         |       |         | 242 |
| 105   | HYBRID 3 DIN    |           |        |          |       |         |       |         | 300 |
| 106   | 74 9 101 2      | 115 4     | 154 4  | 18       | -56   | -40 5   | 22 6  | 90      | 301 |
| 107   | -6 15 0.        | - 12 . 15 | 0      | 5.73     | 0     |         |       |         | 303 |
| 108   | 0 0             | 0         | õ.     | 0.70     | •••   |         |       |         | 304 |
| 109   | VEHICLE INTERIO | no .      | •.     |          |       |         |       |         | 100 |
| 110   | FLOOP           | MATEI     |        | 0        | 1     |         | •     |         | 404 |
| 1 1 1 | INST PANEL      | MATDASH   |        | õ.       |       |         |       |         | 401 |
| 112   | ROISTER         | MATRO     |        | ő.       |       |         |       |         | 401 |
| 113   | WINDSHIELD      | MATWO     |        | <u>0</u> | •     |         | · · · |         | 401 |
| 114   | CUSHION         | MATCH     |        | 0        |       |         |       |         | 401 |
| 1 15  | SEATRACK        | MATSR     |        | õ.       |       |         |       |         | 401 |
| 1 16  | ROOF            | MATOF     |        | 0.       |       |         |       |         | 401 |
|       | 1001            | MAINT     |        |          |       |         |       |         |     |

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## Listing of DOTVW4 at 22:12:12 on FEB 4, 1988 for CCid-SWLN on UM

| 4 4 7 | STEEDING WHEEL | MATCTH     |              | •          |         | •          |            |            | 404 |
|-------|----------------|------------|--------------|------------|---------|------------|------------|------------|-----|
| 117   | STEERING WHEEL | MAISIW     |              | <b>U</b> . | 1.      | 1.         | •.         |            | 401 |
| 118   | FLOOR          | 2.         | 4.           | 1.         | 0.      | 0.         |            |            | 402 |
| 119   | INST.PANEL     | 2.         | 2.           | 1.         | 0.      | 0.         |            |            | 402 |
| 120   | BOLSTER        | 1.         | 2.           | 1.         | 0.      | 0.         |            |            | 402 |
| 121   | WINDSHIELD     | 1.         | 1.           | 1.         | Ο.      | 0.         |            | •          | 402 |
| 122   | CUSHION        | 1.         | 3.           | 1.         | Ο.      | 0.         |            |            | 402 |
| 123   | SEATBACK       | 1.         | 2.           | 1.         | Ο.      | <b>O</b> . |            |            | 402 |
| 124   | ROOF           | 1.         | 2.           | 1.         | Ο.      | Ο.         |            |            | 402 |
| 125   | STEERING WHEEL | 1.         | 5.           | 1.         | Ο.      | Ο.         |            |            | 402 |
| 126   | MATEL          | 0.         | 0.           | Ο.         | 1000.   | 2000.      | 2400.      | 8000.      | 403 |
| 127   | MATDASH        | 0.         | 0.           | ο.         | 1000.   | 2000.      | 0.         | 0.         | 403 |
| 128   | MATBOL         | Õ.         | Ô.           | <b>0</b> . | 1000.   | 2000       | <b>0</b> . | Ô.         | 403 |
| 129   | MATWD          | ŏ.         | Ô.           | Õ.         | 1000    | 2000       | Õ.         | <b>0</b> . | 403 |
| 130   | MATCH          | 0          | õ.           | 0          | 1000    | 2000       | õ.         | 0          | 403 |
| 131   | MATSR          | 0.         | 0.           | ŏ.         | 1000    | 2000       | 0.         | Ö          | 403 |
| 132   | MATOF          | 0.         | 0.           | 0.         | 1000    | 2000       | ŏ.         | 0.         | 403 |
| 132   | MATETH         | 0.         | 0.           | 0.         | 1000.   | 2000.      | 0.         | 0.         | 403 |
| 133   | MATSI          | <u>0</u> . | 0.           | 0.         | 1000.   | 2000.      | 0.         | 0.         | 403 |
| 134   | MAIL           | 2.         | 0.           | 0.         | 0.      | FLSIAI     | INERZ      | FLGM       | 404 |
| 135   | MATDASH        | 2.         | 0.           | 0.         | 0.      | DASHSTAT   | INERZ      | DASHGR     | 404 |
| 136   | MATBOL         | 2.         | 0.           | 0.         | Ο.      | BOLSTAT    | INERZ      | BOLGR      | 404 |
| 137   | MATWD          | 2.         | Ο.           | 0.         | 0.      | WDSTAT     | INERZ      | WDGR       | 404 |
| 138   | MATCH          | 2.         | Ο.           | Ο.         | Ο.      | CHSTAT     | INERZ      | CHGR       | 404 |
| 139   | MATSB          | 2.         | Ο.           | Ο.         | 0.      | SBSTAT     | INERZ      | SBGR       | 404 |
| 140   | MATRF          | 2.         | ο.           | 0.         | Ο.      | RFSTAT     | INERZ      | RFGR       | 404 |
| 141   | MATSTW         | 2.         | Ο.           | 0.         | 0.      | STWSTAT    | INERZ      | STWGR      | 404 |
| 142   | FLGR -1.       | . 2        |              |            |         |            |            |            | 405 |
| 143   | FLGR -1.       | .2         |              |            |         |            |            |            | 406 |
| 144   | DASHGR -1.     | . 6        |              |            |         |            |            |            | 405 |
| 145   | DASHGR -1      | OR         |              |            |         |            |            |            | 406 |
| 146   | BOLGR -1       | 8          |              |            |         |            |            |            | 405 |
| 147   | BOLGR -1       | .08        |              |            |         |            |            |            | 405 |
| 149   | WDCP -1        | .00        |              |            |         |            |            |            | 406 |
| 140   |                |            |              |            |         |            |            |            | 405 |
| 143   |                |            |              |            |         |            |            |            | 406 |
| 150   | CHGR -1.       | . 1        |              |            |         |            |            |            | 405 |
| 151   | CHGR -1.       | . 87       |              |            |         |            |            |            | 406 |
| 152   | SBGR -1.       | . 1        |              |            |         |            |            |            | 405 |
| 153   | SBGR -1.       | . 85       |              |            |         |            |            |            | 406 |
| 154   | RFGR -1.       | . 5        |              |            |         |            |            |            | 405 |
| 155   | RFGR -1.       | . 5        |              |            |         |            |            |            | 406 |
| 156   | STWGR -1.      | . 95       |              |            |         |            |            |            | 405 |
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| 158   | FLSTAT -1.     | 800.       |              |            |         |            |            |            | 407 |
| 159   | DASHSTAT-1.    | 441.24     | -109.64      | 9.3813     | 0.17045 |            |            |            | 407 |
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| 161   | BOLSTAT 6      | 5400       |              |            |         |            |            |            | 407 |
| 162   | WOSTAT -1      | 2000       |              |            |         |            |            |            | 407 |
| 163   | CHSTAT -1      | 122        | 37 6         | -74 48     | 22 16   |            |            |            | 407 |
| 164   | SECTAT -1      | 44         | -9           | 14         | -4      | •          |            |            | 407 |
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| 165   | STUSTAT A      | 0.         |              |            |         |            |            |            | 407 |
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| 107   | SINGTAT RA     | 10/0.      |              |            |         |            |            |            | 407 |
| 168   | SINCIAL DI     | 2500.      |              |            |         |            |            |            | 407 |
| 169   | SIWSIAL .75    | 1875.      |              |            |         |            |            |            | 407 |
| 170   | SIWSTAT 1.5    | 1562.      |              |            |         |            |            |            | 407 |
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| CC 1d=SWLN |
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|-----------|--------|--------|--------|-------|-------|----------|----------|-----------|-----------|----------|-------|-----|----------|-------|----------|----------|---------------------|----------|---------|----------|----------|----------|--------------|----------|----------|----------|---------------------|---|----------|--------|----------|------------|----------|----------|-----|-----|---------------|------|-----|------------|--------|------------|------|----------|-------|--------|----------------------------------------------------------------------------------------------------|-------|-------|-------|-------|----------------|
|           |        |        |        |       | -     | 2.       | -        | -         | 2.        |          |       |     |          |       |          |          |                     |          |         |          |          |          |              |          |          |          |                     |   |          |        |          |            |          |          |     |     |               | c    | ;   |            | -30.   | 9          | o    |          | o     | BINERZ |                                                                                                    |       |       |       |       |                |
| N on UM   |        |        |        |       |       | -        | -        | -         |           | <u> </u> |       |     |          |       |          |          |                     |          |         |          |          |          | 12.3         | 6        | 2.5      | - 18.8   | - 16.2              |   |          | -32.0  | -20.     |            |          |          |     |     |               | c    |     | 22.        | 47.    |            | 135. |          | 2000. | BLTST  |                                                                                                    |       |       |       |       |                |
| CC 1d=SWI |        |        |        |       | . 25  | . 25     | . 25     | . 25      | . 25      | . 25     | 6 N C |     | 28       |       |          | -        |                     |          |         |          |          | •        | 29.7         | 39.2     | 24.7     | 21.1     | 32.                 |   |          | - 16 . | 16.6     |            |          |          |     |     |               | Ö    |     | 10         | -45.28 | °          |      |          | 1000. |        |                                                                                                    |       |       |       |       |                |
| 988 for   |        |        |        |       | 20.   | 20.      | •        | •         | •         |          |       |     |          |       |          |          |                     |          |         |          |          |          | 12.3         | 12.3     | -10.     | - e . a  |                     |   |          | -32.0  | -6.7     |            |          |          |     |     |               | 0    |     | 7.         | 38.25  | 66.<br>110 | .011 |          | 0     | 0      |                                                                                                    |       |       |       |       |                |
| EB 4. 1   |        |        |        |       |       |          |          | NEL       | NEL       | ELO      |       | ł   | D WHEEL  |       |          |          |                     |          |         |          |          |          | - 15.        | 28.7     | 17.5     | 18.7     | 21.1                |   |          | 16.1   | 1.0      |            |          |          | 15  |     |               | 0.   |     |            | -23.   |            |      |          | 0.    | o      |                                                                                                    |       |       |       |       |                |
| :12 on Fi | c      | 2000.  | 13000. | .0    | FLOOR | FLOOR    | BOLSTER  | INST. PAI | INST. PAI | IHSONIA  |       |     | STEERIM  | -     |          | <u> </u> |                     |          |         |          | <b>.</b> | <b>-</b> | <del>.</del> | -        | -        | <u>.</u> |                     |   |          |        |          | 0          | 7        | <b>7</b> | •   |     | - c           | 0    |     | <b>5</b> . | 35.    |            |      | LT       | .0    | 20.    | <b>1</b><br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | . 95  |       | 2500. | 7416. | 0              |
| t 22:12:  | c      | 2.     |        | -1.   |       | _        | _        | _         | -         | 9        |       |     | I WHEEL  |       | _        |          | _                   | 9        | }       |          |          | MHEEL    |              | _        |          | _        | -                   | 3 |          |        | WHEEL    | <b>1</b> . | 2.       | Э.       |     |     | 0.<br>5 FT/SF | 44.5 |     | °.         | -23.   |            |      | TORSO BE |       |        | <u>-</u> .                                                                                         |       | 0.    | . 125 | 6.    | . <del>-</del> |
| DOTVW4 8  | RESTAT | RFSTAT | RFSTAT | INERZ | FLOOR | TOEBOARD | BOLSTERD | MIDDLEDH  | UPPERDH   | ALNOSHIE |       |     | STEERING | FLOOR | TOEBOARD | BOLSTERD | MIUULEUH<br>IDDEDAH | VINDSHIF | CUSHION | SEATBACK | ROOF     | STEERING | FLOOR        | TOEBOARD | BOLSTERD | MJUULEUH | UPPERUM<br>WINDSWIE |   | SEATBACK | ROOF   | STEERING | <b>.</b>   | <b>.</b> | <b>.</b> |     |     | CRASH 44      |      | 17. | °.         | . 20.  |            | 20.  | PASSIVE  | BELT  | BELT   | BL TGR                                                                                             | BLIGR | BLIST | BLTST | BLTST | BINERZ         |
| isting of | 175    | 176    | 177    | 178   | 179   | 180      | 181      | 182       | 183       | 184      |       | 187 | 188      | 189   | 190      | 161      | 7.61                | 194      | 195     | 196      | 197      | 198      | 199          | 200      | 201      | 202      | 502                 |   | 206      | 201    | 208      | 209        | 210      | 211      | 212 | E12 |               | 216  | 217 | 218        | 219    | 022        |      | 223      | 224   | 225    | 226                                                                                                | 227   | 87.7  | 228.2 | 228.3 | 229            |
| -         |        |        |        |       |       |          |          |           |           |          |       |     |          |       |          |          |                     |          |         |          |          |          |              |          |          |          |                     |   |          |        |          |            |          |          |     |     |               |      |     |            |        |            |      |          |       |        |                                                                                                    |       |       |       |       |                |

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|--------|--------------|--------|--------|--------|--------|--------|----------------|---------|---------|----------------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|---------|------------|--------------|--------|-----|------|-----|-----|-----------|-------|-------------|------------|
| c      | BI TCD       |        |        |        | c      | BI TGD |                | c       | HRFLT   |                |        |        |        |        |        |        |       |       |       |       |         |            |              |        |     |      |     |     |           |       |             |            |
| Ċ      | RINED7       |        |        |        | c      | BINED7 |                | Ċ       | BINERZ  |                |        |        |        |        |        |        | HATOP | H3BOT |       |       |         |            |              |        |     |      |     |     |           |       |             |            |
| 2000.  | TOPST        |        |        |        | 2000   | BOTST  |                | 2000.   | ABELT   |                |        |        |        |        |        |        |       |       |       |       | M       |            |              | 24     | 0   | •    |     |     |           |       | 2           |            |
| 1000.  |              |        |        |        | 1000   |        |                | 1000.   |         |                |        |        |        |        |        |        | BÉLT  | BELT  | BELT  | BELT  | STRAPMU | -          |              | 50000. | 9.  |      |     |     |           |       | 201.        |            |
| Ö      | 0            |        |        |        | .0     | 0      |                | 0       |         |                |        |        |        |        |        |        | 0.1   | 0.1   | -     | -     | 0       | 16.        |              |        | -   |      |     |     |           | 0.015 | 085         |            |
| o      | 0            |        |        |        | 0      |        |                | 0       | .0      |                |        |        |        |        |        |        | -21.3 |       |       | 10.6  | 10.6    | 6.67       |              | -      | Э.  | 14.  |     |     | -50,45    | 8.61  | -           | 00         |
| o      | 20.          | 0      | 1000.  | 6000.  | .0     | 20.    | 8534.          |         | 20.     | <b>90</b> .    | 38.    | 0      | 1873.  | 4275.  | 6126.  | 6647.  | -16.3 |       |       | -7.2  | -7.2    | <b>5</b> . | <u>100</u> . |        | 0   |      |     |     | 37.40.46  | 0     | 110.3       | - <b>3</b> |
|        |              | o      | 8      | 10.    |        |        | . <del>-</del> | 11      | 11      | . <del>.</del> |        | o      | 0      | .062   | .092   | . 114  | 2.4   | 2.4   | o     | ō     |         | -          | 25.          |        | -   | 4.71 |     |     | 7,21-32   |       | 60.         | c          |
| HOTOP  | <b>HOTCH</b> | TOPST  | TOPST  | TOPST  | H3BOT  | HJBOT  | BOTST          | STRAPMA | STRAPMA | HBELT          | HBELT  | ABELT  | ABELT  | ABELT  | ABELT  | ABELT  | 2.15  | 12.   | 3.722 | 3.722 |         | Э.         | -<br>-       |        | Э.  | 8    |     |     | 0, 1, 4-1 |       | <b>4</b> 0. | c          |
| 229.01 | 229.02       | 229.03 | 229.04 | 229.05 | 229.06 | 229.07 | 229.08         | 229.09  | 229.1   | 229.11         | 229.13 | 229.15 | 229.16 | 229.17 | 229.18 | 229.18 | 230   | 231   | 231.1 | 231.2 | 231.3   | 232        | 232.1        | 233    | 234 | 235  | 236 | 237 | 1001      | 1002  | 1003        | 1004       |

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