PLAINTIFF'S
EXHIBIT
BRK-182

STATE OF OHIO
THE INDUSTRIAL COMMISSION OF OHIO
DIVISION OF SAFETY AND HYGIENE
2325 WEST FIFTH AVENUE
P.O. BOX 1745
COLUMBUS, OHIO 43216
PHONE (614) 466-3385

Industrial Commission
GREGORY J. STERBINS
Chairman
MARGUERITE M. NEAL
Vice Chairman
JOHN E. SENN
Member

JOHN J. GILLIGAN
Governor

Division of Safety and Hygiene
GARY B. BRYNER
Superintendent
WILLIAM C. MURPHY
Assistant Superintendent

October 30, 1974

Legal Section
Industrial Commission of Ohio
Ohio Departments Building
Columbus, Ohio 43215

Risk #SI-2647

Attention: John R. Allen
Room 419 B

Re: O.D. 540971-22
Donna C. Lutton

Gentlemen:

On September 26, 1974, a visit was made to the plant of Packard Electric Division, General Motors Corporation, Warren, Ohio to check conditions under which the claimant had worked.

The company manufactures automotive electrical wiring, cable and harnesses.

According to company records, the claimant's experience is as follows:

11-1-63 - 5-12-64	Assembly harness - progressive
5-12-64 - 5-25-64	Inspection - large harness
5-25-64 - 8-12-64	Assembly harness - progressive
8-12-64 - 2-8-65	Inspection - large harness
2-8-65 - 9-13-65	Inspection - misc. small assembly
9-13-65 - 12-22-65	Inspection - large harness
12-22-65- 1-22-68	Assembly harness - progressive
1-22-68 - 10-21-68	Nipple machine operator
10-21-68- 2-12-69	Reoperations
2-12-69 - 3-20-69	Punch press - Baird
3-20-69 - 2-23-70	Short orders
2-23-70 - 3-2-70	Assembly and/or hand tape - harness
3-2-70 - 6-8-70	Short orders
6-8-70 - 12-16-70	Make and/or assemble machine
12-16-70- 5-10-71	Assembly and/or hand tape - harness
5-10-71 - 6-21-71	Short orders
6-21-71 - 6-21-71	Machine winding - core
6-21-71 - 9-20-71	Assembly and/or hand tape - harness
9-20-71 - 10-11-71	Assembly harness - progressive
10-11-71- 2-28-72	Punch press - Baird
2-28-72 - 5-15-72	Short orders
5-15-72 - 7-16-73	Punch press - Baird
7-16-73 - 5-2-74	Inspection - misc. small assembly - Dept. 1073 inspectic in Dept. 1129
5-2-74 - present	Small assembly - harness - Dept. 374 - no cleaning machine at this location. 42

Printed circuit boards, for a seat belt and starter interlock, were processed in Dept. 1129. Following flow soldering in a ventilated enclosure, the boards were conveyed through a machine in which they were sprayed with 1,1,1 trichloroethane (methyl chloroform) at a temperature of 160° F. The machine, supplied by Hollis Engineering, Inc., Nashua, N.H., was identified as a "Micro-Clean" printed circuit board cleaner. At the exit of the machine, the boards were dumped from the conveyor into tote pans. A partition a few feet beyond, isolated an inspection room from the fabrication area. Originally, the line had been arranged to convey the boards directly from the cleaning machine into the inspection room, but this was not done in production. Instead, the boards were discharged into tote pans. For a short time, the pans were promptly carried into the inspection room. Then it was found desirable to place the pans in a rack in the fabrication area to allow evaporation of remaining 1,1,1 trichloroethane cleaning solvent.

Measurements of solvent vapor were made with a Model OVA-98A Century Systems Corp. Organic Vapor Analyzer, which utilized a flame ionization detector. At the machine discharge, there was a side draft slotted exhaust hood located at the side and directly above the tote pan. The vapor level about 1 ft. above the pan, with no parts being supplied, was 6 to 9 parts per million (ppm). With parts being discharged, there were occasional excursions to 19 ppm. Air velocity into the hood, measured with an Alnor Velometer, was 100 feet per minute (fpm).

At the upper level of parts in a freshly loaded pan, the vapor concentration was 12,000 ppm. However, at a distance of 2 ft. above the pan, which would be the breathing zone of an operator handling the pan, the concentration was 9 ppm.

Measurements were made at the breathing zone of the operator in the inspection room, the location at which the claimant had worked in the period form 7-16-73 to 5-2-74. The possible original procedure was first simulated. In this, a freshly loaded pan was brought to the operator's station. Vapor concentration at the breathing zone was from 12 to 90 ppm. Following this, a pan which had set for a period of 5 to 10 minutes after loading was measured similarly. This gave concentrations of from 2 to 60 ppm, 25 ppm being typical.

Base readings of the instrument were taken. In another plant area, away from any solvent, the reading was 1.8 ppm.

The company has reported that operation of the line including the cleaning machine had begun on 4-16-74, and that the claimant had alleged that the symptoms were experienced on 4-18-74 and thought vapors had come through an open conveyor slot into the inspection room. Measurements at that time by an environmental engineer of the company indicated no apparent vapor at the discharge of the cleaning machine when no parts were emitted, and less than 25 ppm when parts were being discharged.

The Threshold Limit Value (TLV) for 1,1,1 trichloroethane is 350 ppm. A copy of the Hygienic Guide Series of the American Industrial Hygiene Association on this solvent is enclosed for information.

The Threshold Limit Values refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may repeatedly exposed day after day without adverse effect. Because of wide variation in individual susceptibility, however, exposure of an occasional individual at or even below the threshold limit may not prevent discomfort, aggravation of a pre-existing condition, or occupational illness.

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The low vapor levels indicated by measurements of this Division and by the company indicate no apparent hazard or irritant in the working area.

Very truly yours,

Robert W. Hursh, P.E.
Industrial Hygiene Engineer

RWH:ech

Encls.: (3)

Degreaser installed 4/16/74

Employee had symptoms 4/18.

Parts not taken directly to inspection by conveyor. However, trays may then have been taken to inspection room immediately on being filled from conveyor.

div. BONNA C. LUTTON

DATE OF BIRTH 7-18-42 NAME

S. S. # 165-34-1702

VAC	MED	DATE OF ENTRY MO	DA	YR	ISP/SUB	SENIORITY MO	DA	YR	SEX	N/RE	MERIT	RATE	UNGRA	PACK. JOB CODE	P/NP	DATE IN OCCUP. DA	MO	YR	TOP RATE OF JOB	CHANGE DATE MO	DA	YR	EMP. STAT.	P/T
20	1				1	11	01	63	1	1		2.290		738	1	11	01	63	2.390	11	01	63	01	2
20	1				1	11	01	63	1	1		2.340		738	1	11	01	63	2.390	12	01	63	01	2
20	1				1	11	01	63	1	1		2.390		738	1	11	01	63	2.390	12	09	63	01	2
20	1				1	11	01	63	1	1		2.390		738	1	11	01	63	2.390	01	30	64	01	1
21	1				1	11	01	63	1	1		2.390		724	1	05	25	64	2.390	05	12	64	01	1
21	1				1	11	01	63	1	1		2.390		738	1	05	25	64	2.390	05	25	64	01	1
21	1				1	11	01	63	1	1		2.390		724	1	08	12	64	2.390	08	12	64	01	1
												2.500								10	18	64	GI	
												.010		724		08	12	64		09	07	64	IN	
21	1				1	11	01	63	1	1		2.510A		724	1	08	12	64	2.510	11	23	64	01	1
21	1				1	11	01	63	1	1		2.490		725	1	02	08	65	2.490	02	08	65	01	1
21	1				1	11	01	63	1	1		2.490		725	1	02	08	65	2.490	02	26	65	24	1
21	1				1	11	01	63	1	1		2.490		725	1	02	08	65	2.490	04	05	65	01	1
21	1				1	11	01	63	1	1		2.490		725	1	02	08	65	2.490	06	21	65	24	1
21	1				1	11	01	63	1	1		2.490		725	1	02	08	65	2.490	08	16	65	01	1
21	1				1	11	01	63	1	1		2.550G		725	1	02	08	65	2.550	09	06	65	01	1
21	1				1	11	01	63	1	1		2.570		724	1	09	13	65	2.570	09	13	65	01	1
21	1				1	11	01	63	1	1		2.570		738	1	12	22	65	2.570	12	22	65	01	1
21	1				1	11	01	63	1	1		2.570		738	1	12	22	65	2.570	12	27	65	01	1
21	1				1	11	01	63	1	1		2.570		738	1	12	22	65	2.570	03	17	66	24	1
22	1				1	11	01	63	1	1		2.570		738	1	12	22	65	2.570	07	18	66	01	1
22	1				1	11	01	63	1	1		2.660G		738	1	12	22	65	2.660	09	05	66	01	1
22	1				1	11	01	63	1	1		2.660		738	1	12	22	65	2.660	10	14	66	24	1
22	1				1	11	01	63	1	1		2.660		738	1	12	22	65	2.660	01	31	67	01	1
22	1				1	11	01	63	1	1		2.660		738	1	12	22	65	2.660	08	25	67	24	1
22	1				1	11	01	63	1	1		2.660		738	1	12	22	65	2.660	11	21	67	01	1
22	1				1	11	01	63	1	1		2.660 +.200		738	1	12	22	65	2.660	12 10	22 16	67 67	29 GI	1
22	1				1	11	01	63	1	1		3.140A		738	1	12	22	65	3.140	01	01	68	29	1
22	1				1	11	01	63	1	1		3.140		738	1	12	22	65	3.140	01	04	68	01	1
22	1				1	11	01	63	1	1		3.080		740	1	01	22	68	3.080	01	22	68	01	1
22	1				1	11	01	63	1	1		3.080		740	1	01	22	68	3.080	03	04	68	24	1
23	1				1	11	01	63	1	1		3.080		740	1	01	22	68	3.080	03	11	68	01	1
23	1				1	11	01	63	1	1		3.080		740	1	01	22	68	3.080	05	06	68	24	1
23	1				1	11	01	63	1	1		3.080		740	1	01	22	68	3.080	09	09	68	01	1
23	1				1	11	01	63	1	1		3.080		577	1	10	21	68	3.080	10	21	68	01	1

S. S. # 165-34-1702 Length of Service 11-1-63

46

P/T: 1. PERM. 2. TEMP.

P/NP: 1. PROD. 2. NON PROD.

N/RE: 1. NEW HIRE 2. REHIRE

MED.: 1. OK 2. MED.

UNION: 1. BARG. 2. EXCLUDED

ISP/SUB: 1. SUB 2. ISP 3. BOTH 4. NOT ELIG.

EMP. STATUS CODES: 01 ACTIVE, 10 LAID OFF, 20 FLA, 22 MLA, 23 PERS. LEAVE—ILA, 24 DISABILITY SICK LEAVE, 26 MATERNITY LEAVE, 28 UNION LEAVE, 29 PERS. LEAVE—VAC., 87 QUIT, 91 DECEASED.. * SEE CHART FOR ADDITIONAL CODES

EMPLOYES SERVICE HISTORY RECORD

DONNA C. LUTTON — NAME

7-18-42 — DATE OF BIRTH

165-34-1702 — S.S. #

J/A C	M/E D	DATE OF ENTRY MO	DA	YR	I-SP/S	SENIORITY MO	DA	YR	B/E	N/RE	MERIT	RATE	UPGRA	PACK. JOB CODE	P/NP	DATE IN OCCUP. DA	MO	YR	TOP RATE OF JOB	CHANGE DATE MO	DA	YR	EMP. STAT.	P/T
23	1				1	11	01	63	1	1		3.170G		577	1	10	21	68	3.170	11	25	68	01	1
23	1				1	11	01	63	1	1		3.170		577	1	15	21	68	3.170	12	02	68	24	1
23	1				1	11	01	63	1	1		3.17		577	1	10	21	68	3.17	01	25	69	01	1
23	1				1	11	01	63	1	1		3.170		571	1	12	12	69	3.170	12	12	69	01	1
23	1				1	11	01	63	1	1		3.18G		582	1	03	20	69	3.280	03	20	69	01	1
23	1				1	11	01	63	1	1		3.230		582	1	03	20	69	3.280	04	19	69	01	1
23	1				1	11	01	63	1	1		3.230		582	1	03	20	69	3.280	04	28	69	24	1
23	1				1	11	01	63	1	1		3.230		582	1	03	20	69	3.280	05	06	69	01	1
23	1				1	11	01	63	1	1		3.230		582	1	03	20	69	3.280	05	30	69	24	1
23	1				1	11	01	63	1	1		3.330G		582	1	03	20	69	3.380	11	24	69	24	1
23	1				1	11	01	63	1	1		3.330		582	1	03	20	69	3.380	02	17	70	01	1
23	1				1	11	01	63	1	1		3.270		789	1	02	23	70	3.270	02	17	70	01	1
23	1				1	11	01	63	1	1		3.280		582	1	03	02	70	3.380	03	02	70	01	1
23	1				1	11	01	63	1	1		~~3.300~~ 3.330		582	1	03	02	70	3.380	04	01	70	01	1
23	1				1	11	01	63	1	1		3.380		582	1	03	02	70	3.380	05	31	70	01	1
23	1				1	11	01	63	1	1		3.270		807	1	06	08	70	3.270	06	08	70	01	1
23	1				1	11	01	63	1	1		3.270		807	1	06	08	70	3.270	06	11	70	24	1
23	1				1	11	01	63	1	1		3.270		807	1	06	08	70	3.270	08	31	70	01	1
2327					1	11	01	63	1	1		3.920G		807	1	06	08	70	3.920	11	23	70	17	1
2327					1	11	01	63	1	1		3.920		807	1	06	08	70	3.920	12	07	70	01	1
2327					1	11	01	63	1	1		3.920		789	1	12	16	70	3.920	12	16	70	01	1
2327					1	11	01	63	1	1		3.920		789	1	12	16	70	3.920	01	18	71	01	1
2327					1	11	01	63	1	1		3.920		789	1	12	16	70	3.920	02	23	71	24	1
2327					1	11	01	63	1	1		3.920		789	1	12	16	70	3.920	05	03	71	01	1
2327					1	11	01	63	1	1		4.030		582	1	05	10	71	4.030	05	10	71	01	1
2317					1	11	01	63	1	1		3.920		778	1	06	21	71	3.920	06	21	71	01	1
2317					1	11	01	63	1	1		3.920		789	1	06	21	71	3.920	06	21	71	01	1
2317					1	11	01	63	1	1		3.980		738	1	09	20	71	3.980	09	20	71	01	1
2317					1	11	01	63	1	1		3.980		738	1	09	20	71	3.980	10	04	71	01	1
2317					1	11	01	63	1	1		3.920		571	1	10	11	71	3.920	10	11	71	01	1
2317					1	11	01	63	1	1		3.920		571	1	10	11	71	3.920	10	19	71	24	1
2317					1	11	01	63	1	1		3.920		571	1	10	11	71	3.920	11	04	71	01	1
2317					1	11	01	63	1	1		4.100G		571	1	10	11	71	4.100	11	22	71	01	1
2317					1	11	01	63	1	1		4.100		571	1	10	11	71	4.100	01	06	72	01	1
2317					1	11	01	63	1	1		4.220		582	2	02	28	72	4.220	02	28	72	01	1
2317					1	11	01	63	1	1		4.100		571	1	05	15	72	4.100	05	15	72	01	1
2317					1	11	01	63	1	1		4.100		571	1	05	15	72	4.100	07	24	72	01	1
2317					1	11	01	63	1	1		4.100		571	1	05	15	72	4.100	10	16	72	24	1

S. S. # 165-34-1702 See Card #2 Length of Service 11-1-63

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P/T: 1. PERM. 2. TEMP.

P/NP: 1. PROD. 2. NON PROD.

N/RE: 1. NEW HIRE 2. REHIRE

MED.: 1. OK 2. MED.

UNION: 1. BARG. 2. EXCLUDED

ISP/SUB: 1. SUB 2. ISP 3. BOTH 9. NOT ELIG.

EMP. STATUS CODES: 01 ACTIVE; 10 LAID OFF; 20 FLA; 22 MLA; 23 PERS. LEAVE—ILA; 24 DISABILITY SICK LEAVE; 26 MATERNITY LEAVE; 28 UNION LEAVE; 29 PERS. LEAVE—VAC.; 87 QUIT; 91 DECEASED

* SEE CHART FOR ADDITIONAL CODES

EMPLOYES SERVICE HISTORY RECORD

NAME: DONNA C. LUTTON

DATE OF BIRTH: 7-18-42

S. S. #: 165-34-1702

VAC	MED	DATE OF ENTRY MO	DA	YR	ISP/SUB	SENIORITY MO	DA	YR	B/E	N/RE	MERIT	RATE	UPGRA	PACK. JOB CODE	P/NP	DATE IN OCCUP. DA	MO	YR	TOP RATE OF JOB	CHANGE DATE MO	DA	YR	EMP. STAT.	P/T
																				10	16	72	24	
2317					1	11	01	63	1	1		4.220G		571	1	05	15	72	4.220	11	20	72	24	1
2317					1	11	01	63	1	1		4.220		571	1	05	15	72	4.220	12	04	72	01	1
2417					1	11	01	63	1	1		4.220		725	1	07	16	73	4.220	07	16	73	01	1
2417					1	11	01	63	1	1		4.820A		725	1	07	16	73	4.820	12	03	73	01	1
2417					1	11	01	63	1	1		4.820		725	1	07	16	73	4.820	08	12	74	29	1
2417					1	11	01	63	1	1		4.820		725	1	07	16	73	4.820	08	26	74	01	1
2417					1	11	01	63	1	1		4.960G		725	1	07	16	73	4.960	09	23	74	01	1

S. S. # 165-34-1702 Length of Service 11-1-63

P/T	M/RE	UNION	EMP. STATUS CODES			
1. PERM.	1. NEW HIRE*	1. BARG.	01 ACTIVE	23 PERS. LEAVE—FLA	87 QUIT	
2. TEMP.	2. REHIRE	2. EXCLUDED	18 LAID OFF	24 DISABILITY SICK LEAVE	91 DECEASED	
		ISP/SUB	20 FLA	26 MATERNITY LEAVE		
P/NP	MED.	1. SUB	21 MTL	28 UNION LEAVE	* SEE CHART FOR ADDITIONAL CODES	
1. PROD.	1. OK	2. ISP	22 MLA	29 PERS. LEAVE—VAC.		
2. NON PROD.	2. MED.	3. BOTH	25 ELA			
		9. NOT ELIG.	27 AWOL			

EMPLOYES SERVICE HISTORY RECORD

48

F-2730-B

Plant 11 (Cont'd)

Methyl Chloroform - Seat Belt Interlock

Seat belt starter interlock circuit boards are flow soldered in a ventilated enclosure in Department 1129. The soldering operation is followed by a cleaning procedure in which the boards are conveyed through an enclosure where they are sprayed with methyl chloroform (1,1,1 trichloroethane) at 160°F. The blocks are not completely dry as they emerge from the cleaning enclosure. Solvent is reclaimed in a closed still adjacent the cleaning equipment.

The ICLM solder line, in the same department, was not in operation. This line requires hand cleaning by dipping a basket of parts. The solder line and dip tank have local ventilation.

Results of tests for methyl chloroform vapor are recorded below. None of the tests in the breathing zone indicate significant exposures. However, high concentrations escape the cleaning tank at the conveyor exit. Ventilation at the tank openings should be considered. Drying the parts on ejection would reduce accumulation of vapor in the receiving box.

Permissible Limit for Methyl Chloroform

The permissible limit of exposure to methyl chloroform (1,1,1 trichloroethane), as given in the OSHA Regulations, is 350 ppm.

Results of Tests for Methyl Chloroform

Location and Conditions	Methyl Chloroform in ppm
Breathing zone at discharge end of cleaning tank, no parts emitted.	None Detected
Breathing zone at discharge end of cleaning tank, parts being emitted.	Less Than 25