

LETTER NO. 28
April 11, 1973

TO: Plant Engineers, All Plants
Division Plant Engineers
Plant Managers
General Manufacturing Managers

PLAINTIFF'S EXHIBIT

FD-979

CONTENTS

Page

SECTION A: GENERAL INSTRUCTIONS AND
INFORMATION

No Subjects Included

SECTION B: MAINTENANCE INFORMATION

Asbestos Pipe Covering and Insulation -
Standard Handling Procedures

M-201

Industrial Truck Maintenance
Control System

M-202

Fire Loss Analysis 1972

Complete

SECTION C: ENGINEERING AND CONSTRUCTION

No Subjects Included

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8004 0596

SCF-FORD-1033

ASBESTOS PIPE COVERING AND INSULATION - STANDARD HANDLING PROCEDURES

The Federal Department of Labor under the authority of the Occupational Safety and Health Act of 1970 (OSHA) has promulgated specific standards for the use of asbestos.

Pipe covering and insulation materials may contain asbestos, particularly in older installations. Plants considering new pipe covering and insulation projects should investigate other non-asbestos materials such as calcium silicate and fiberglass.

The attached letter recommends procedures to be followed in plants using asbestos pipe covering and insulation to avoid potential health hazard to employees and to be in compliance with OSHA regulations.

Attachment

M-201

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INDUSTRIAL TRUCK MAINTENANCE CONTROL SYSTEM

The Corporate Industrial Truck Maintenance Control System, required by Manufacturing Procedure III c 8, provides for the collection of vehicle related data and the preparation of reports to assist plants, divisions and staffs in the reduction of operating costs, efficient operation, and proper decision making. The system is a series of standard computer programs that are processed by individual plants or divisions.

Pertinent truck data such as purchase price and date, description, manufacturer, and brass tag number are captured at the time of purchase. Subsequently, the following data are collected:

Repair Costs - Labor and material associated with each repair.

Operating Hours - Total number of operating hours submitted weekly.

Preventive Maintenance Data - Type of inspection and operating hours.

These data are used to prepare a series of weekly and monthly reports entitled:

1. Repair Cost by Vehicle.
2. Purchase to Date Repair Cost by Vehicle.
3. Year to Date Detail Repair Log.
4. Weekly Inspection Schedule.
5. Weekly Inspection Schedule Summary.

The primary purpose of the Industrial Truck Maintenance Control System is for use as a plant tool in industrial truck operations. The data collected will ultimately be used in Corporate and Division decision making for such alternatives as:

- o Lease or buy equipment.
- o Manufacturer preference.
- o Component longevity and maintainability.
- o OSHA compliance substantiation.

Information on programs and documentation can be had by contacting the Systems Planning and Development Office, World Headquarters. Any other information about the system can be had by contacting the Plant Engineering Office, Maintenance Department, World Headquarters.

FIRE LOSS ANALYSIS - 1972

Introduction

The Fire Loss Analysis for the year 1972, is based upon data submitted by Ford Motor Company Overseas and United States locations on Form 3193, "Report of Fire Protection Incidents and Property Damage".

The fire incidents for the United States locations include only those where actual property loss amounts were submitted during the calendar year of 1972. Some of the actual losses occurred prior to 1972, but were not determined or submitted until 1972. The analysis of fires for Overseas locations does not include loss amounts as only a negligible number of incidents included such information.

ANALYSIS OF FIRES

United States Fires

The following is a tabulation of the number of fires which occurred in the United States and property loss attributed to the fires for the last five years.

<u>Year</u>	<u>No. of Fires</u>	<u>Actual Reported Cost</u>
1968	464	\$ 428,800.00
1969	608	1,379,200.00
1970	519	1,590,000.00
1971	403	1,307,900.00
1972	385	1,156,800.00

There were 26 fires for which actual costs were reported during 1972, with losses above \$5,000.00. This number was 6.8% of the total number reported, but caused losses totalling \$1,079,800.00 or 93.3% of the total property loss.

During the year 1971, 37 fires resulted in losses over \$5,000.00. This number was 9.2% of the number of fires, caused a loss of \$1,307,900.00 or 91% of the total property loss for 1971.

Compilation of 1972 United States Fire Losses

<u>No. of Fires</u>	<u>Loss Range in Dollars</u>	<u>Fire Loss</u>	<u>% Fires</u>	<u>% Loss</u>
327	0-500	\$ 16,970.00	84.9	1.5
14	501-1,000	10,627.00	3.6	0.9
18	1,001-5,000	49,285.00	4.7	4.3
9	5,001-10,000	73,391.00	2.4	6.3
<u>17</u>	<u>10,001 & Over</u>	<u>1,006,444.00</u>	<u>4.4</u>	<u>87.0</u>
385		\$1,156,800.00	100.0	100.0

SOURCES OF IGNITION

Electrical Failures caused 162 fires (45 in the United States and 117 in Overseas Locations) or 17.3% of all fires reported during 1972. The monetary loss in the United States from this cause was \$37,000.00. During the year 1971, there were 287 fires (83 in the United States and 204 in Overseas Locations) or 25.0% of all 1971 fires with a loss of \$188,800.00. The reduction in number of fires and amount of loss caused by electrical failures is encouraging.

Smoking and Matches again were a leading cause of fires throughout the Company. There were 116 incidents attributable to careless smoking (27 in the United States and 89 in Overseas Locations) or 12.4% of all reported fires. The monetary loss attributed to careless smoking was \$11,295.00. The number of fires caused by careless smoking in 1971 was 151, but the loss was only \$1,750.00.

Nonproduction Cutting and Welding caused 92 fires (51 in the United States and 41 in Overseas Locations) or 9.8% of all 1972 fires. The loss from these fires was \$59,400.00 - about four times the loss reported in 1971 caused by 104 incidents.

Nonproduction cutting and welding fires are preventable. Strict adherence to Company Fire Control Practices as outlined in the Industrial Relations Administration Manual, Volume III, Section Q, Topic 550 for the United States and 5500 for Overseas Locations, is mandatory.

COMBUSTIBLES INVOLVED

Rubbish, Dust and Lint still continue to lead all other classifications of materials that burned. There were 355 fires (157 in the United States and 198 in Overseas Locations) or 38% of the total fires reported during 1972.

Again, there was a significant reduction in the number of fires reported during 1972, as compared to 1971, from 401 to 355 fires. Enhancing good housekeeping efforts and maintaining clean facilities will further reduce the number of fires involving rubbish, dust, etc.

Flammable Liquids, always a worrisome combustible, were involved in 242 fires (108 in the United States and 134 in Overseas Locations) or 25.9% of all reported fires.

The number of fires involving flammable liquids during 1972, increased about 10% over those reported during 1971.

It is mandatory that established good practices regarding storage, handling and use of flammable liquids be established and maintained.

Fire Control Bulletin No. 18, Flammable Liquids, and National Fire Protection Association Pamphlet No. 30, Flammable and Combustible Liquids, (N.F.P.A. No. 30 is also contained in National Fire Codes, Volume 1, published by N.F.P.A.) should be referred to regarding fire-safe practices concerning flammable liquids.

Electrical Insulation fires reported during 1972 totalled 166 (45 in the United States and 121 in Overseas Locations) or 17.9% of all reported fires. During 1971, a total of 256 (70 in the United States and 186 in Overseas Locations) were reported. An encouraging reduction in the number of fires involving electrical equipment is evident.

HOW ALARMS WERE TURNED IN

Automatic fire detection equipment, including automatic sprinkler waterflow alarms and other fixed fire protection systems, were the means of transmitting alarms in 41% of the fires occurring in the United States and 17.3% of the Overseas fires. The following tabulation indicates how all fire alarms were turned in and who turned them in. In reporting a single fire, more than one means was used in many instances, i.e., automatic fire detection and by Company employees.

	<u>United States</u>		<u>Overseas</u>		<u>Company Total</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Automatic Detection	59	15.3	18	3.3	77	8.2
Fire Alarm Box	105	27.3	45	8.2	150	16.0
Telephone	245	63.6	414	75.3	659	70.5
In Person	10	2.6	55	1.0	65	6.9
Security Employee	28	7.3	70	12.7	98	10.5
Other Employee	52	13.5	102	18.5	154	16.5
Water Flow Alarm	43	11.2	26	4.7	69	7.4
Carbon Dioxide Alarm	45	11.7	15	2.7	60	6.4

HOW FIRES WERE FOUGHT

Automatic Sprinkler Protection systems operated during 69 fire incidents (43 in the United States and 26 in Overseas Locations) or 7.3% of the total fires reported. The sprinkler protection was completely effective in 94% of the fires. In 6% of the fires where sprinkler protection actuated, extinguishment was completed by supplementing sprinkler discharge with application of fire extinguishers and fire hose streams.

Fixed Carbon Dioxide fire extinguishing systems were actuated in 52 fires (13 in the United States and 39 in Overseas Locations) or 5.6% of the total fires reported. The fixed carbon dioxide fire protection systems were effective in 87% of the fires. Extinguishment was completed in the remaining 13% of the fires by using fire extinguishers and fire hose streams.

Municipal Fire Department and Fire Brigades were called on for assistance during 13% of the fires that occurred in the United States and in 41% of the Overseas fire incidents. A greater percentage of fire incidents may not have required assistance from municipal fire departments or fire brigades, as 88% of the United States fires were under \$1,000.00 with an average loss of but \$93.00.

Notwithstanding the success of our Company personnel in prompt extinguishment of fires and thus limiting monetary loss, it is only prudent to request the services of professional fire fighters during a fire. All alarms of fire must be promptly transmitted to the municipal fire department or fire brigade to prevent delays in response and the small fire from becoming a catastrophic loss.

Portable Fire Extinguishers of various types were used by Company employees during almost all fire incidents throughout the Company. Small and large diameter fire hose were laid and used at 15% of the United States fires, but only 3% of the fires occurring at Overseas locations.

SIGNIFICANT FIRES

Fiberglass Reinforced Exhaust System Fire

Because of the corrosive atmosphere, a fume exhaust system consisting of fiberglass reinforced plastic was provided over a conveyor system. The conveyor, of steel slat design, carried heavy loads and the conveyor required much maintenance because of friction.

A new lubrication system was being installed to eliminate the lack of an effective means of lubrication. As an interim measure, a temporary oil mist lubricating system was installed. The exhaust ventilation system caused air-borne particles of the oil mist to form an oil residue on the interior surface of the fiberglass reinforced plastic fume exhaust system.

An electric short caused a fire to start inside the exhaust system. The municipal fire department was promptly called. Plant employees attacked the fire with hand extinguishers without success. Large diameter fire hose was used by the fire department. A total of 93 building sprinklers operated. Though recommended, automatic fire protection was not installed inside the plastic exhaust system.

The fume exhaust system, including scrubber facilities, located on the roof were destroyed. Finished goods and goods in process were destroyed.

This fire caused \$508,000.00 in damage. The loss could have been greatly reduced by:

1. Use of stainless steel for fume exhaust systems instead of combustible plastic ducting.
2. Provision of fixed automatic fire protection for interior of exhaust system where oil condensates occur.

Flammable Liquids and Static Electricity

An employee, while adding solvent (toluene) to ink for the purpose of increasing its viscosity, received second degree burns to his legs and arms, about 15% of his body. The solvent was added via a hose line from the tank farm system. The employee had not bonded the hose to the ink container. A static spark occurred flashing the solvent.

The employee dropped the hose line and ran outside of the building with his clothing on fire. A fellow employee rolled the employee who was on fire in snow (there was 2-in. of snow on the ground).

While both the plant volunteer fire brigade and the municipal fire department responded promptly, their services were not necessary. The fire was extinguished by the planned protection consisting of fixed total flooding automatic carbon dioxide fire protection. Additionally, eight automatic sprinklers operated.

To prevent reoccurrence, the following improvements were immediately made:

1. Spring loaded self-closing valves were provided.
2. Conductive and grounded hose was provided.

A faulty ground clamp to a flammable liquids supply line (tetrahydrofuran - 40°F. flashpoint) caused a static spark at the nozzle and a flash fire occurred. The solvent was being used to flush a plastic coating supply line. The fire involved the organic coating font and fabric to be coated. The fixed pipe carbon dioxide fire protection extinguished the fire. Five high temperature sprinkler heads also fused. While the plant fire brigade and municipal fire department was in attendance, their services were not needed.

To prevent reoccurrence, the faulty ground connection (a "C" clamp) to the structural steel was made secure by using a nut and bolt through a hole in the structural steel.

Nonproduction Cutting and Welding caused a fire with damage amounting to \$41,000. An employee was using oxy-acetylene equipment to remove metal brackets. Sparks from the operation ignited sea coal and core sand saturated with a mixture of fatty acid and kerosene. A cutting and welding permit was not issued.

There was damage to electrical panels, approximately 10,000-ft. of electric wiring, conduit, air hoses, hydraulic hoses, air regulators and lubricators.

Permits should be issued for all nonproduction cutting and welding. Prior to issuing permits, the area should be thoroughly inspected and all combustible or flammable material removed or protected.

Company policy regarding nonproduction cutting and welding is outlined in the Industrial Relations Administration Manual, Volume III, Section Q, Topic 550, for United States Locations and Topic 5500 for Overseas Locations.

Propane Fueled Fork Lift Truck

A malfunction in the propane vaporizer of a fork lift truck caused propane gas to fill the engine compartment. When the engine was started, a back fire occurred, igniting the gas and enveloping the compartment in flames. Fire spread to the surrounding area.

Three automatic sprinklers operated. Fire extinguishers and both small and large diameter fire hose were used to extinguish the fire in 15-minutes.

Damage to the fork lift truck required replacement of electrical harness, battery, voltage regulator, propane vaporizer, carburetor, hoses, seat cushion and alternator. Damage to the building consisted of 200-ft. of pipe insulation, electrical wiring, fluorescent fixtures, heating ducts, Toledo Scale and a fire hose stand-pipe.

Proper maintenance of propane fueled vehicles requires regular inspection of propane hoses, hose connections and vaporizers. All defects must be corrected before the vehicle is placed in service.

Partly Closed Gas Valve

When a coke oven was not heating properly, the main gas control valve was shut off so that the oven valve could be serviced and cleaned. The valve was not completely closed, and when a plug was removed below the valve, escaping gas was ignited by heat from the coke oven.

Two employes were burned - the first employe received 1st and 2nd degree burns to his face, ears and both thighs from hips to knees and the second employe received 1st and 2nd degree burns to his face, ears, hands and wrists.

To prevent accidents of this type, care should always be taken to assure that gas valves that must be closed are actually closed. Safe practice procedures should be reviewed periodically.

Friction Heat

Excessive sparks and friction heat ignited a mineral seal coolant (flashpoint 250°F) on a grinder. The loss was \$46,000.00. The fire was extinguished in 15-minutes by the plant's employes using a length of 1½-inch fire hose. Three sprinkler heads also operated. The municipal fire department was called, but their services were not needed. To prevent reoccurrence, management has substituted a water soluble coolant and cutting oil in lieu of the mineral seal oil.

UNITED STATES FIRE LOSSES - 1972

Source of Ignition	Automotive Assembly	Castings Division	Chassis Division	Engine Division	Ford Division	Ford Parts Division	Ford Tractor Operations	General Parts Division	General Services	Industrial and Chemical Products	Metal Stamping	Steel Division	Transmission Division	Glass Division	Company Total	% of Company Total
Nonprod. Cut. and Weld. 1.	8	3	8	6		1		7	1		13	1	2	1	51	13.
Smoking and Matches 2.	7		3					3	1		5	2	5	1	27	7.
Electrical Failure 3.	2	1	18					1	1		7	5	10		45	11.
Prod. Cut. and Weld. 4.			3								13	1	1		18	4.
Friction Heat 5.	4	3	3					9			2	4	30		55	14.
Open Flames 6.			2				1	2			1	1	4		11	2.
Hot Surfaces 7.	2	3	4	1				3	1		2	4	3	1	24	6.
Hot Mat. in Process 8.		15		11				1	2		1	23	1		54	14.
Sparks and Embers 9.	1	2	8	1				6			3	1	11	1	34	8
Not Elsewhere Classified 10.	17	5	2	2				13		2	12	10	3		66	17
Total Number of Fires	41	32	51	21		1	1	45	6	2	69	62	70	4	385	100

Combustibles Involved

Rubbish, Dust, Lint, Etc. 1.	15	7	23	7		1		18	1		31	23	28		157	40
Flammable Liquids 2.	6	7	17	10				13	1	2	10	8	36	1	108	28
Flammable Gases 3.	1	1					1	1			6	1			10	2
Electric Insulation 4.	2	7	9	4				2	1		6	8	5	1	45	11
Packing Materials 5.	9		1					8			6			1	24	6
Structures 6.			1								1	7		1	10	2
Cloth, Rope, Tarps, Etc. 7.	3	1						3	3			2	1		13	3
Rubber Tires and Foam 8.		9										3			12	3
Upholstery Materials 9.	3														3	0
Acoustical Materials 10.	1										1				2	0
Flammable Metals 11.																
New Units 12.	1														1	0
Total Number of Fires	41	32	51	21		1	1	45	6	2	69	62	70	4	385	100

Costs

\$0 - \$500 1.	29	25	47	18		1		40	5		53	40	66	3	327	84
\$501 - \$1,000 2.	3		2					1	1		3	2	2		14	
\$1,001 - \$5,000 3.	4	4	1	3				3				2	1		18	
\$5,001 - \$10,000 4.	2										2	4		1	9	
\$10,001 - Up 5.	3	3	1				1	1		2	1	4	1		17	
Total Costs (000)	86.5	128.3	13.9	7.3			10.9	518.8	0.8	40.4	25.0	263.3	55.4	5.2	385	100
															1156.8	

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OVERSEAS FIRE LOSSES - 1972

Source of Ignition	Automobile Assembly	Engine Plants	Foundry Forge	Office	Parts and Accessories	Research and Engineering	Stamping Plants	Tractor Plants	Transmission Plants	Warehouse	Other	Total	% of Total
Nonprod. Cut. and Weld. 1.	16	4	9	1		1	2	2	1		5	41	7.6
Smoking and Matches 2.	47	19	6	3		1	5	4	3		1	89	16.2
Electrical Failure 3.	57	21	4		1	4	12		7	1	10	117	21.3
Prod. Cut. and Weld. 4.	35						11		1			47	6.5
Friction Heat 5.	5	9	1			1	9		2			27	4.9
Open Flames 6.	7	1	11		1		2		3	1	3	29	5.3
Hot Surfaces 7.	29	11	9	2		3	6	1	1		3	65	11.8
Hot Mat. in Process 8.	2	3	16				2		1		1	25	4.5
Sparks and Embers 9.	17	15	11		1	4	5	1	1	1	4	60	10.9
Not Elsewhere Classified 10.	21	8	6		1	1	4	5	3		1	50	9.1
Total Number of Fires	236	91	73	6	4	15	58	13	23	3	28	550	100.0

Combustibles Involved

Rubbish, Dust, Lint, Etc. 1.	87	40	22	1		5	18	10	8	1	6	198	36.0
Flammable Liquids 2.	54	25	21		2	5	18	1	4		4	134	24.4
Flammable Gases 3.	11	2	5				3	1		1	2	26	4.5
Electric Insulation 4.	64	18	7		1	3	10		7	1	10	121	22.0
Packing Materials 5.	5	2	2	3			6	1	2		1	22	4.0
Structures 6.	3	1	4	1	1						3	13	2.4
Cloth, Rope, Tarps, Etc. 7.	9	2	10	1		1	1		1		1	26	4.7
Rubber Tires and Foam 8.			1				1					2	0.4
Upholstery Materials 9.							1					1	0.2
Acoustical Materials 10.													
Flammable Metals 11.		1	1						1			3	0.5
New Units 12.	3					1					1	5	0.9
Total Number of Fires	236	91	73	6	4	15	58	13	23	3	28	550	100.0

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**COMPILATION OF UNITED STATES AND OVERSEAS
FIRE LOSSES BY SOURCE OF IGNITION AND COMBUSTIBLES INVOLVED - 1972**

Source of Ignition	United States		Overseas		United States and Overseas	
	Number	Percent	Number	Percent	Number	Percent
Nonprod. Cut. and Weld. 1.	51	13.3	41	7.5	92	9.8
Smoking and Matches 2.	27	7.0	89	16.2	116	12.4
Electrical Failure 3.	45	11.7	117	21.3	162	17.3
Prod. Cut. and Weld. 4.	18	4.7	47	8.5	65	7.0
Friction Heat 5.	55	14.3	27	4.9	82	8.8
Open Flames 6.	11	2.9	29	5.3	40	4.3
Hot Surfaces 7.	24	6.2	65	11.8	89	9.5
Hot Mat. in Process 8.	54	14.0	25	4.5	79	8.4
Sparks and Embers 9.	34	8.8	60	10.9	94	10.1
Not Elsewhere Classified 10.	66	17.1	50	9.1	116	12.4
Total Number of Fires	385	100.0	550	100.0	935	100.0

Combustibles Involved

Rubbish, Dust, Lint, Etc. 1.	157	40.8	198	36.0	355	38.0
Flammable Liquids 2.	108	28.0	134	24.4	242	25.9
Flammable Gases 3.	10	2.6	25	4.5	35	3.7
Electric Insulation 4.	45	11.7	121	22.0	166	17.8
Packing Materials 5.	24	6.2	22	4.0	46	4.9
Structures 6.	10	2.6	13	2.4	23	2.5
Cloth, Rope, Tarps, Etc. 7.	13	3.4	26	4.7	39	4.2
Rubber Tires and Foam 8.	12	3.1	2	0.4	14	1.5
Upholstery Materials 9.	3	0.8	1	0.2	4	0.4
Acoustical Materials 10.	2	0.5			2	0.2
Flammable Metals 11.			3	0.5	3	0.3
New Units 12.	1	0.3	5	0.9	6	0.6
Total Number of Fires	385	100.0	550	100.0	935	100.0

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MISCELLANEOUS STATISTICS

The following is data concerning the reported 1972 fire incidents for general information:

	<u>United States</u>	<u>Overseas</u>
Fire Alarm Turned in By:		
Automatic Detector	59	18
Security Employee	28	70
Other	52	102
How Alarm Turned In:		
Telephone	245	414
Fire Alarm Box	105	45
In Person	10	55
Who Fought Fire:		
Plant Fire Brigade	109	246
Security Personnel	36	69
Other Employee	231	212
Municipal Assistance Needed:		
Yes	50	226
No	329	314
Personal Injuries:	12	22
Fixed Fire Protection Activated:		
Automatic Sprinklers	43	26
Carbon Dioxide	45	15
Other	11	46
Type of Fire Extinguisher Used:		
Water Type	107	145
Carbon Dioxide	110	232
Dry Chemical	56	56
Fire Hose	57	15
Area Operating:		
Yes	330	462
No	51	88