Ford



PLAINTIFF'S EXHIBIT

FD-1639

Car Engineering

Inter Office

Advanced Vehicle Engineering and Technology

September 24, 1981

To: S. Gratch
A. Iaconelli
D. J. McChesney
N. W. Ressler
V. H. Sussman
C. F. Talbot
P. E. Toth

cc: A. B. M. Houston
T. A. Loch*

Subject: 1982 Advanced Budget - Toxic/Hazardous Advisory Group

For 1982, there are only five (5) toxic substance-related advanced projects (attached). I do not feel that this small number of projects justifies a prioritization meeting.

What I propose is a telephone vote. Frank Carson (X-23759) will be contacting you on October 1, requesting your direction on individual projects. The following are the criteria (identical to last year) for prioritizing tox/haz projects:

Priority	
1	Must do (stay in business, attain major business or profit objective).
2	Highly desirable.
3	Discretionary (do if funds available).
4	Defer or drop (low risk).

Our plan is to prepare a short report and submit it to the group's members by October 7 for comments/concurrence.

G. F. Bolling

G. F. Bolling

FC/ksh

Attachment

*Mr. Loch is representing Mr. McChesney.

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SCF-FORD-3153

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1982 TOXIC SUBSTANCES

Project Title	Project Number	Location Code	Present Proposed Budget $(000)	Voting Record	Ave
1. R-12 Reduced Leakage/Charge 3	FAF-06	CCD	$ 118.0		
2. Alternate Fluorocarbons 2	FAF-09	CCD	99.0		
3. Friction Materials & Systems /	R612C	Rec	278.8		
4. Asbestos-Free Brake Linings /	CZA-214	PPE-C	100.0		
5. Lead Solder Replacement 7	BR04G	BEPE	100.0		
Toxic Substances Total			$ 695.8		

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Advanced Engineering and Research Project Description and Status

TECHNICAL INFORMATION SYSTEM

LF06 3A

Project No (Limit to 6 spaces) 1	Location Code 2	Project Name (Limit to 43 spaces) 3	82 Econ	Labor	Mat'l/Service	Total
FAF06	CCD	R-12 Reduced Leakage/Charge		62	45/11	118.[illegible]

Want Code 5	Priority 6	7	Comm. 7A	Comm. 7B	Comm. 7C	Comm. 7D	8	9	C/O Project No 10	81 Econ		
V0-103	A	V8A	~~V8A~~	V2E	V2A	V2G		TT	FAF06		/	

Department Manager/Phone 11	Chief Engineer/Director/Phone 11	Location Planner/Phone 11	1st Qtr.	1981 Economics
L. E. Colombo/40854	N. W. Ressler/76041	P.W.Drenkow/ 8-832-3131		/

Other Offices Involved 12	Facing Project Required by 13	Prior Year(s) Expense 14	Future Year(s) Forecast 15	2nd Qtr.	
					/

Suppliers 16	Senior Buyer 17	Man Months 18	3rd Qtr.	
		16		/

Target Model Year 19	Target Vehicle/Plant 19	Weight 19	Design Cost 19	Fuel Economy Effect 19	Repair Rate 19	Investment 19	4th Qtr.	
1984	TBD	TBD lbs.	$ TBD	TBD Mpg	TBD R/100	$ TBD		/

Program Objectives 20 (Limit to 350 spaces)

- Continue development of A/C systems and components for reducing refrigerant leakage and charge to satisfy anticipated EAP regulation.
- Develop leakage data base of A/C systems/components using "SHED" technique.

#1

Technical Approach (List major evolutions) 21 (Limit to 350 spaces)

Start date 22: 1-4-82

Completion Dates 23: Scheduled / Actual

STATUS REPORTS

Status as of ____ (Limit to 350 spaces) 24A	YTD Expenses 25A	Year End Forecast 26A	% Work Complete 27A	Notes (Limit to 13 sp) 28A
	$	$		

Status as of ____ (Limit to 350 spaces) 24B	YTD Expenses 25B	Year End Forecast 26B	% Work Complete 27B	Notes (Limit to 13 sp) 28B
	$	$		

Status as of ____ (Limit to 350 spaces) 24C	YTD Expenses 25C	Year End Forecast 26C	% Work Complete 27C	Notes (Limit to 13 sp) 28C
	$	$		

Status as of ____ (Limit to 350 spaces) 24D	YTD Expenses 25D	Year End Forecast 26D	% Work Complete 27D	Notes (Limit to 13 sp) 28D
	$	$		

Numbers on form refer to instructions on reverse side

Issue/Revision Dates 29: 8/24/81

Eng & Res Staff 5183 (Previous editions may NOT be used.)

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1982 8006 1740

Advanced Engineering and Research Project Description and Status

TECHNICAL INFORMATION SYSTEM

LF09 3A

Project No. (Limit to 8 spaces) 1	Location Code 2	Project Name (Limit to 43 spaces) 3	82 Econ	Budget ($000) Labor	Mat'l/Service	Total
FAF09	CCD	Alternate Fluorocarbons		43	49 /7	99.(

Want Code 5	Priority 6	7	Comm. 7A	Comm. 7B	Comm. 7C	Comm. 7D	8	9	C/O Project No. 10	81 Econ		
VO-103	A	V8A ~~V8A~~	V2E	V2C	V2G			TT	FAF09		/	

Department Manager/Phone 11	Chief Engineer/Director/Phone 11	Location Planner/Phone 11	1981 Economics	
L. E. Colombo/40854	N. W. Ressler/76041	P.W. Drenkow/ 8-832-3131	1st Qtr.	/

Other Offices Involved 12	Facing Project Required by 13	Prior Year(s) Expense 14	Future Year(s) Forecast 15	2nd Qtr.	/

Suppliers 16	Senior Buyer 17	Man Months 18	3rd Qtr.	/
DuPont, ICI, Allied	R. R. Prim	11		

Target Model Year 19	Target Vehicle/Plant 19	Weight 19	Design Cost 19	Fuel Economy Effect 19	Repair Rate 19	Investment 19	4th Qtr.	/
198X	All	None lbs.	$ TBD	TBD Mpg	TBD R/100	$ TBD		

PROJECT DESCRIPTION

Program Objectives 20 (Limit to 350 spaces)

- Continue development efforts to resolve open issues of R-134a, R-500, R-22/142D and evaluate any new refrigerants proposed.
- Coordinate "Legislative Issue" matters with Corporate Activities.

#2

Technical Approach (List major evolutions) 21 (Limit to 350 spaces)

Start date 22: 1-4-82

Completion Dates: Scheduled / Actual

STATUS REPORTS

Status as of ____ (Limit to 350 spaces) 24A	YTD Expenses 25A $	Year End Forecast 26A $	% Work Complete 27A	Notes (Limit to 13 sp) 28

Status as of ____ (Limit to 350 spaces) 24B	YTD Expenses 25B $	Year End Forecast 26B $	% Work Complete 27B	Notes (Limit to 13 sp) 28

Status as of ____ (Limit to 350 spaces) 24C	YTD Expenses 25C $	Year End Forecast 26C $	% Work Complete 27C	Notes (Limit to 13 sp) 28C

Status as of ____ (Limit to 350 spaces) 24D	YTD Expenses 25D $	Year End Forecast 26D $	% Work Complete 27D	Notes (Limit to 13 sp) 28

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Issue/Revision Dates 29: 8/24/81

Eng. & Res. Staff June 81 5183 (Previous editions may NOT be used)

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Advanced Engineering/Research & Long Range Research Budget Worksheet

- For Advanced programs, instructions for completing this form are attached.
- For Long Range programs, fill in boxes 1, 2, 3, 4B, & 11

TECHNICAL INFORMATION SYSTEM

K612

Project No. R6120	Location Code RES	Project Name (Limit to 43 spaces) Friction Materials and Systems										Budget ($000)		
Cost Code V5-035	Priority A	V8B	Comm 7A VD	Comm 7B V3A	Comm 7C V88	Comm 7D		TT	Prod. Planner No. R6120	Actual	257.8	Total Obligated 5.0 /6.0		278.8
Development Management Phone J. E. Mayer/592-2080		Chief Engineer/Director Phone M. Humenik/592-2030			Location Planner Name/Phone M. A. Roberts/33-75506					1st Qtr		1982 Economics /		
Prod. Engineering Activities PPE-C, PPE-T		Facility Projected by PPE-C, PPE, T			Major Materials Expense		Tooling Material Forecast			2nd Qtr		/		
Remarks					Service Shops		Plan Planning 66.0			3rd Qtr		/		
Project Model Yr	Project Vehicle/Plant	Weight lbs	Design Cost $	Fuel Economy Effect	Noise Effect	Investment $				4th Qtr		/		

PROJECT OBJECTIVES

Study the behavior of friction materials and systems, and develop friction materials, test methods and quality control procedures.

#3

TECHNICAL APPROACH (Use extra sheets if necessary)

Same as 1982 PLANS listed below.

1982 PLANS

1. Provide brake design support to Concept Vehicles.
2. Continue non-asbestos lining studies, with emphasis on our laboratory material developments.
3. Perform disc brake cooling optimization studies for advanced vehicles (Taurus, Topaz, Versaille rear disc).
4. Initiate basic studies of drum brakes.
5. Continue QC test development, in particular update FAST and PGC QC tests for non-asbestos brake and clutch materials.
6. Using developed surface texture instruments begin correlation studies of surface texture with friction and wear performance:
7. Initiate scaled wet clutch experiments on non-asbestos materials.
8. Study interfacial interactions of sliding surfaces.

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1982

Advanced Engineering and Research Project Description and Status

TECHNICAL INFORMATION SYSTEM

C7A214

LC14 LC14 3A

PROJECT DESCRIPTION

Project No. (Limit to 6 spaces) 1	Location Code 2	Project Name (Limit to 43 spaces) 3	82 Econ	Budget ($000) Labor	Mat'l/Service	Total
	PPE-C	Asbestos-Free Brake Linings			/	

Work Code 5	Priority 6	7	Comm. 7A	Comm. 7B	Comm. 7C	Comm. 7D	8	9	C/D Project No. 10	81 Econ	Labor	Mat'l/Service	Total
M9-051	A	V8B	V3A					TT			30	20 / 50	10

Department Manager/Phone 11	Chief Engineer/Director/Phone 11	Location Planner/Phone 11	1981 Economics
R.J.Neme/34050	J.D.Velte/30545	G.Gorker/30334	1st Qtr /

Other Offices Involved 12	Facing Project Required by 13	Prior Year(s) Expense 14	Future Year(s) Forecast 15	2nd Qtr. /

Suppliers 16	Senior Buyer 17	Man Months 18	3rd Qtr. /

Target Model Year 19	Target Vehicle/Plant 19	Weight 19 lbs.	Design Cost 19 $	Fuel Economy Effect 19 Mpg	Repair Rate 19 R/100	Investment 19 $	4th Qtr. /
1984							

Program Objectives 20 (Limit to 350 spaces)

Develop asbestos-free brake linings to eliminate toxicity hazard while meeting functional, durability and noise objectives.

#4

Technical Approach (List major evolutions) 21 (Limit to 350 spaces) — Start date 22 — Completion Date: Scheduled / Ac

- Complete DV lab and vehicle tests on lining samples submitted by vendors during calendar year 1981 and evaluate data. — 4/1/82
- Initiate fleet testing. — 6/1/82
- Finalize pilot program and issue OK-to-tool transferring effort from Advanced Engineering to Program. — 10/1/82

STATUS REPORTS

Status as of _____ (Limit to 350 spaces)	YTD Expenses	Year End Forecast	% Work Complete	Notes (Limit to 13
24A	25A $	26A $	27A	
24B	25B $	26B $	27B	
24C	25C $	26C $	27C	
24D	25D $	26D $	27D	

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Issue/Revision Dates 29: 8-21-81

Eng & Rec Staff June 81 5183 (Previous editions may NOT be used.)

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1982

Advanced Engineering and Research Project Description and Status

BR04G

TECHNICAL INFORMATION SYSTEM 381

PROJECT DESCRIPTION

Project No. (Level to 6 spaces)	Location Code	Project Name (Limit to 25 spaces)							02 Base	Labor	Material & Service	Total $
	BEPE	Ford Soldier Encapsulant									/	
Work Order No.	Source							DS Number	01 Base	50	25 / 25	100
10-071		V2C	V4A				TT	38045				
Department Manager	Project Engineer/Coordinator								1st Qtr		1981 Estimate	
A. Iacone 11/79060	W. C. Tyner-31394										/	
Other Offices Involved	Existing Project Required by				Prior Year(s) Expenses	Future Years Forecast			2nd Qtr			
Research, AAD	None				87000	TBD					/	
Suppliers					Vendor Buyer	Man Weeks			3rd Qtr			
American Cyanamid						12					/	
Target Launch Year	Target Vehicle/Platform	Weight	Design Cost	Fuel Economy Effect	Design Rate	Investment			4th Qtr			
1985	All	TBD lbs	$ TBD	TBD Miles	TBD Per Day	$ TBD					/	

Program Objectives 32 (Limit to 360 spaces)

This project will be extended into the 1982 calendar year for long range weathering, durability and APO testing. Review and planning of 50-100 cars production trial.

#5

Technical Approach (List major evaluations) 31 (Limit to 360 spaces)

Start date 01-04-82 32

Completion Dates 33

	Scheduled	Actual
1. Begin test of three 1982 Mustangs for road durability, cycled weathering and APO tests.	TBD	
2. Analyze test results and recommend for a 50-100 car production trial.	TBD	

STATUS REPORTS

	YTD Expenses	Year End Forecast	% Work Complete	Notes
Status as of ____ (Limit to 360 spaces) 34A	$ 34A	$ 35A	37A	(Limit to 13 spaces) 38A
Status as of ____ (Limit to 360 spaces) 34B	$ 34B	$ 35B	37B	(Limit to 13 spaces) 38B
Status as of ____ (Limit to 360 spaces) 34C	$ 34C	$ 35C	37C	(Limit to 13 spaces) 38C
Status as of ____ (Limit to 360 spaces) 34D	$ 34D	$ 35D	37D	(Limit to 13 spaces) 38D

Contact E. Resendes (X33196)

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Approval Dates 39

Proj & Hdq Supt 40 5183 (Previous Version Not to be used)

7/10/81

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