Value Analysis of 13M12 Food Mixer

Schenectady, June 22, 1953

53-26

Mr. George A. Williams
Materials Manager
Small Apparatus Division
Bridgeport, Conn.

We appreciate the opportunity to have worked on this project, and would like to thank all who have made it possible.

The purpose of this study has been to remove all cost which does not contribute to the performance or marketability of this project.

This study began on April 27, 1953 at the Value Analysis Seminar at the Edison Club in Schenectady and was continued for four weeks after the termination of the seminar, under the direction of L. D. Miles, Manager of the Value Analysis Services Unit in Schenectady, closing on June 19, 1953

The extensive assistance of the Engineering Services Division have made it practicable to suggest changes in appearance as well as functional parts of the Mixer. C. F. Schaus and his group have energetically and enthusiastically contributed their services and facilities to this project.

This summary will serve its purpose if it is of value to the Bridgeport Management, in helping them with practical suggestions to get better value into our Mixer. These suggestions have not been worked out in detail; as it is not our purpose to do the work of Engineering or any other group.

Due to the limited time available we have merely touched on the more outstanding items and in view of the possibilities uncovered we feel that it would be very profitable to make a thorough analysis of this product. Therefore, in the back of this folder can be found a few suggested items for study, which if investigated further by a full time Value Analyst should yield practical suggestions and high reward.

J. P. Ettinger, Value Analysis Services Unit,
Bldg. #32-G, Second Fl. Ext. 3104

JPE:ARP

Value Analysis
of
13M12 Food Mixer

ACKNOWLEDGEMENT

I would like to thank Mr. J. G. Hodge, Mgr. of Wage Rate and Mr. W. T. Short, Supvr. of Personel for making it possible for me to work on this interesting project. Also to acknowledge and thank the many people who contributed to this study. Especially helpful were:

L. D. Miles - Mgr. Value Analysis Services Unit, Schenectady

R. E. Fountain - Value Analysis Services Unit, Schenectady

D. L. Eagan - Value Analysis Services Unit, Schenectady

C. F. Schaus - Mgr. Appearance Design, Schenectady

W. H. Young - Appearance Design, Schenectady

C. Clark - Appearance Design, Schenectady

R. Bowen - Value Analyst, Bridgeport, Connecticut

H. H. Miller - Mgr. Engineering, Brockport, New York

O. Gerry - Engineering, Brockport, New York

C. B. Miller - Gas Turbine, Schenectady

J. O. Perron - Distribution Transformer, Holyoke, Mass.

J. P. Ettinger
Materials Services Dept.
Value Analysis Unit
June 1953

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PROPOSED MIXER

A study of the proposed mixer, as shown in the photograph in this report, will surely disclose its many desirable features such as higher profits, lower selling cost, appearance, noise reduction, unbreakable, sales appeal (Tomorrows Mixer Today), choice of color schemes, etc.

Models of the proposed mixer have been made and are to be used in the Public Acceptance Survey being conducted by the Appearance Design Section of Engineering Services under the direction of C. F. Schaus, Mgr. Results of the Survey are not yet available, but all who have had an opportunity to express their opinion on the proposed design have been very enthusiastic. The choice of color schemes in knob and bowls seems to be very well met.

The proposed design has been made possible as a result of the wonderful cooperation extended to us by the interested people of the Brockport Plant. We have attempted to keep all interested parties informed of the progress of this study and have had many helpful suggestions from Mr. Williams and Mr. Gerry of Brockport.

J. P. Ettinger
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Value Analysis Unit
June 1953

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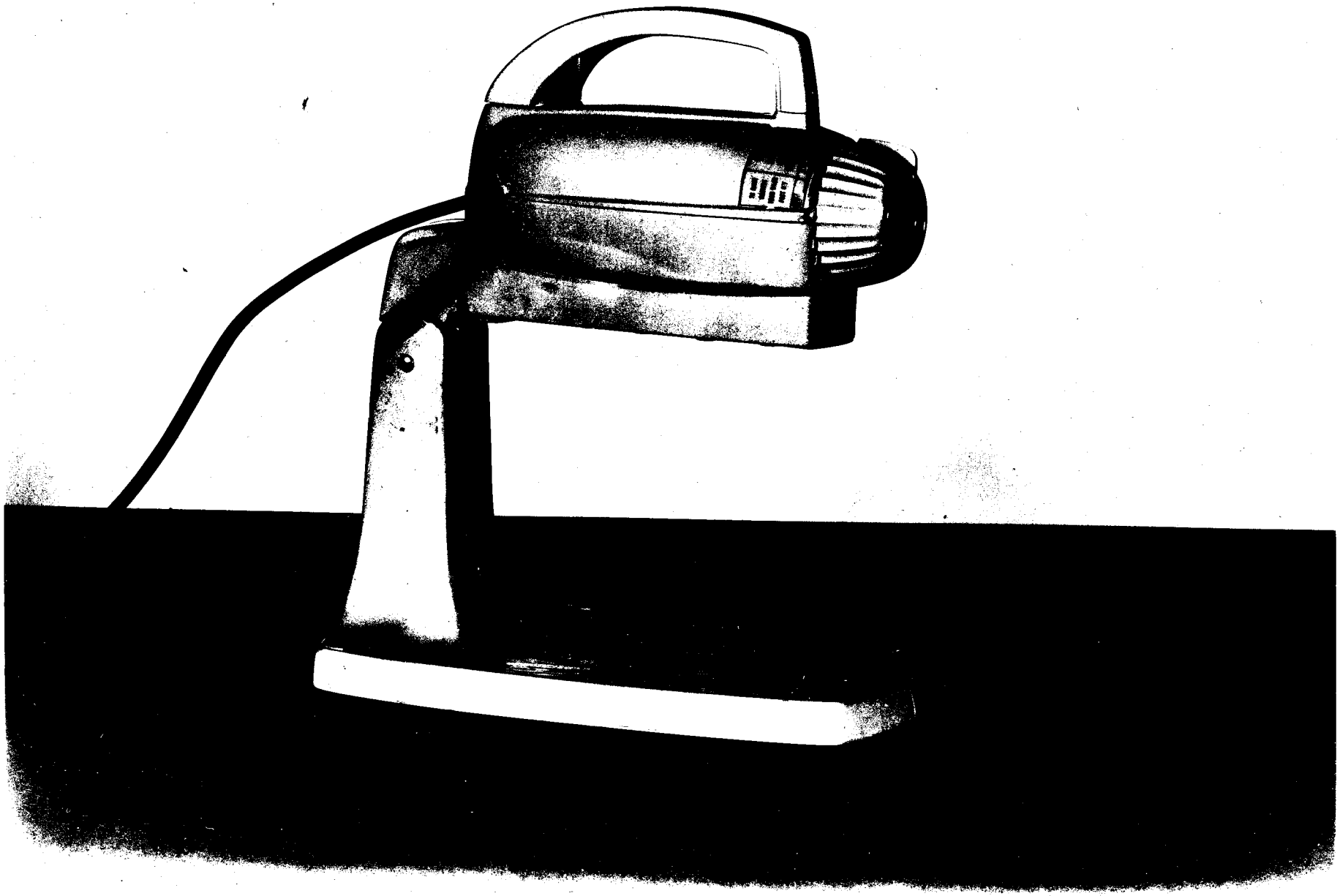

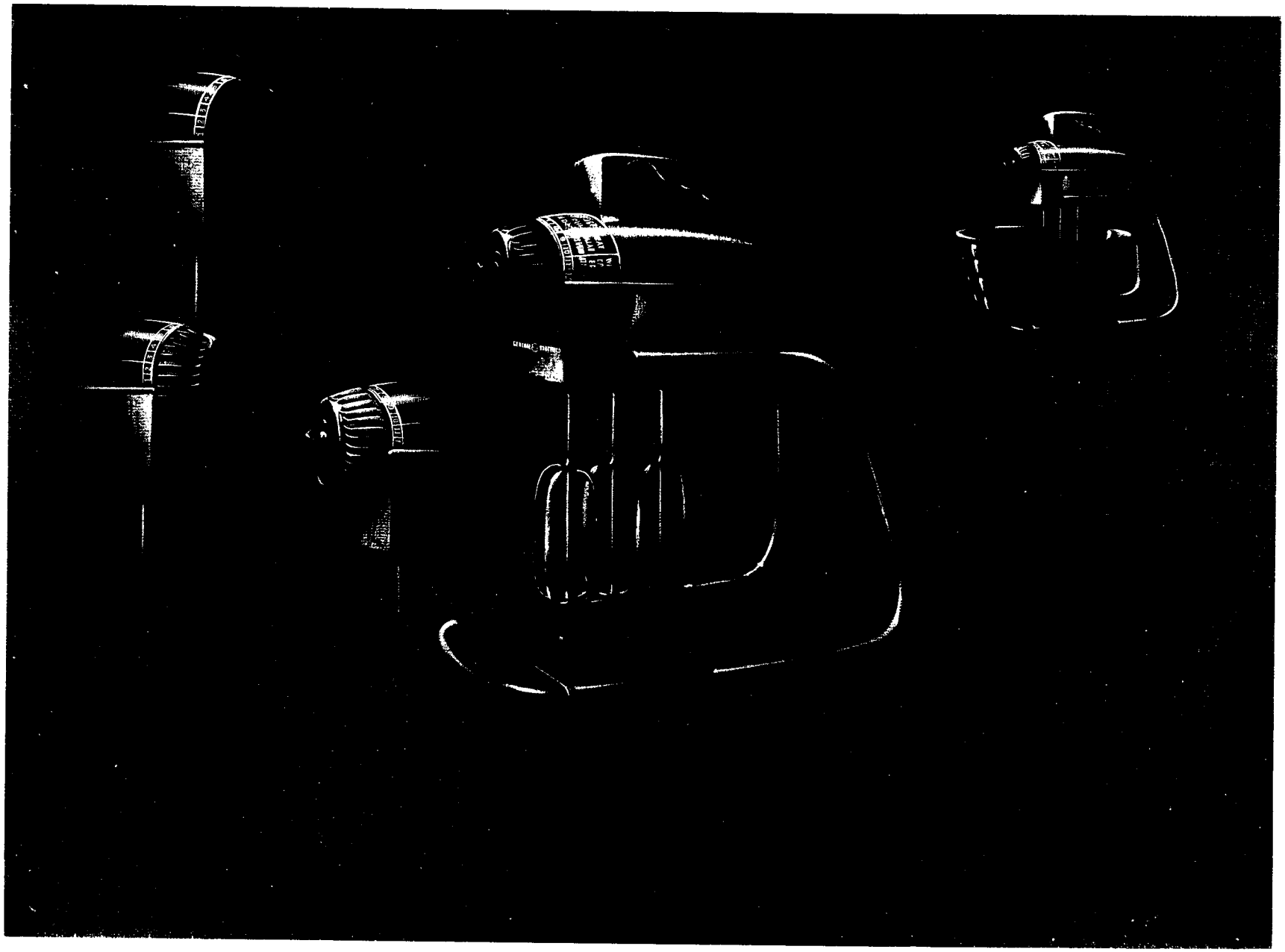

13M12 Mixer
Base & Hinge Block Assembly
4174751-1
250,000/year

Estimated Annual Savings - $346,000.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$1,594.44	$177.50	$1,771.94*
Proposed	388.04	—	388.04**
Reduction			$1,383.90

Comments: The cost of the present base as shown above, is a total of the base and hinge block costs plus the cost of the related items required to utilize the present base. The savings available through simplification of the lower case Dwg. (D-5434305) have not been included here as figures were not available at the time of this writing.

Below is an itemized list of the items included in the above present cost:

	Shop Cost in $/M
4174751 - Base & Hinge Block Asm.	$1,720.54
4176710 - Yoke	5.57
5434087 - Latch Pin	38.09
4176731 - Latch Spring	1.70
4176712 - Latch Knob	6.04
Total Present Cost	$1,771.94*

Below is an itemized list of the items included in the above proposed cost. The items estimated are of course subject to some slight variation from the actual cost.

	Shop Cost in $/M
Tube Form	$323.20
Rubber Feet	20.00
Tube end Plugs	16.00 (estimated)
Swivel Stud Support	25.00 (estimated)
Swivel Stud	2.00 (estimated)
Lock Nut	1.84
Finishing	—
	$388.04**

The cost of the tools for bending the tube form will be $7,800.00.

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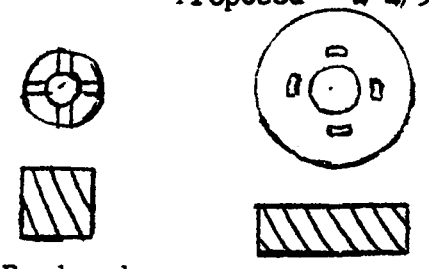
13M12 Mixer
Intermediate Gear Assembly
5434050
250,000/year

Estimated Annual Savings - $184,000.00

Proposed - 4-4/5¢

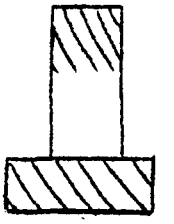


Powdered Metal Pinion

Molded Nylon Gear

Roll formed Coupling

Present - 81¢



Nylon blank is pressed on steel blank and gears are hobbed together

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$811.00	---	$811.00
Proposed	48.00	---	48.00
Reduction			$763.00

Comments: This is presently a purchased part. We suggest that we substitute an assembly of three inexpensive parts for the present gear. This will not only give us a much lower cost, but also yield a better product, in that both the pinion and gear can align themselves and ride freely on the gear stud. This will eliminate the tolerance (concentricity) problems and much of the friction between the gear and the shaft.

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Materials Services Dept.
Value Analysis Unit
June 1953

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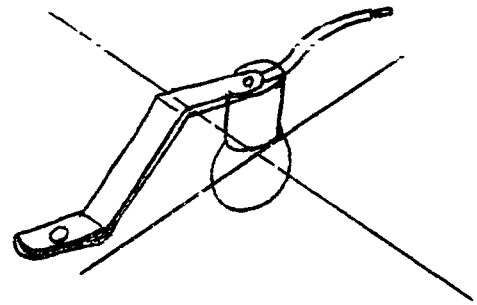
13M12 Mixer
Lamp Socket Asm. & Related Items
5434039
250,000/year

Estimated Annual Savings - $148,125.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$592.50	---	$592.50
Proposed	---	---	---
Reduction			$592.50

Comments: The following is a list of the component parts of lamp socket asembly and related items:

	Per/M
5434039 Lamp socket asm.	$82.00
GE #47 Light	33.00
#2 x 5/16" Screw	1.53
4176727-4 Resistor	383.00
5434004-3 Condenser	92.21
5434040 Resistor Bracket (2/unit)	.76
	$592.50 *

The cost of assembly has not been taken into consideration in calculating the savings inasmuch as these figures were not available at the time of this writing.

We feel that since we are offering the customer the features of our new design such as choice of color schemes etc. that we might eliminate the light, as it should no longer be necessary as a sales feature.

J. P. Ettinger
Materials Services Dept.
Value Analysis Unit
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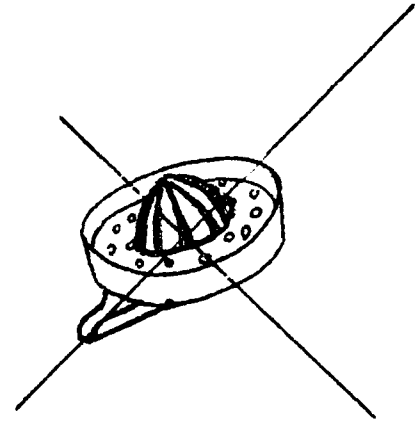
13M12 Mixer
Juice Extractor
4170734-1
250,000/year

Estimated Annual Savings - $88,045



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$326.18	$26.00	$352.18
Proposed	—	—	—
Reduction			$352.18

Comments: We suggest that the juicer no longer be included as standard equipment. Due to quality and low cost of concentrated juices on the market people are abandoning the practice of juicing fruits. The juicer might be made available as optional equipment, at an additional cost.

J. P. Ettinger
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Value Analysis Unit
June 1953

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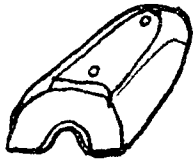
13A12 Mixer
Upper Case
D-5434304
250,000/year

Estimated Annual Savings - $59,090.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$624.36	$40.80	$752.06
Proposed	388.00	40.80	515.70
Reduction			$236.36

Comments: This case is presently an aluminum die casting. By converting to a case molded of plastic (white lumarith) the above savings will result. There will be a tool charge of $6,500.00

J. P. Ettinger
Materials Services Dept.
Value Analysis Unit
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Small Mixer
Lower Case
D-543,305
250,000/year

Estimated Annual Savings - $47,750.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$645.89	$45.59	$788.62
Proposed	455.00	45.59	597.73
Reduction			$190.89

Comments: This case is presently an aluminum die casting. By converting to a case molded of plastic (white lumarith or bakelite) the above savings will result. There will be a tool charge of $6100.00

J. P. Ettinger
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Value Analysis Unit
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12 Mixer
Handle
T-4170607
0,000/year

Estimated Annual Savings - $47,400.00

Proposal I

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$298.59	---	$298.59
Proposed	109.00	---	109.00
Reduction			$189.59

Estimated Annual Savings - $15,292.50

Proposal II

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$298.59	---	$298.59
Proposed	237.42	---	237.42
Reduction			$ 61.17

Comments: Proposal I - A reliable vendor has quoted us the proposed figure for a handle molded of standard color white polystyrene. We may use our present tools, or if we desire new tools the cost will be $7100.00 for an eight cavity compression mold.

Proposal II - A reliable vendor has quoted us the proposed figure for the Handle molded of a white urea MUP-00. We may use our present tools, or if we redesign the handle the tool cost for a four cavity compression mold will be $7,220.00.

J. P. Ettinger
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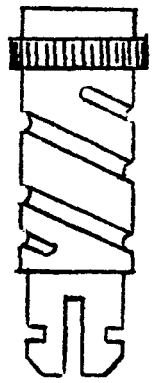
13M12 Mixer
Spindle
B-5434102
250,000/year

Estimated Annual Savings - $47,145.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$88.80	---	$88.80
Proposed	25.94	---	25.94
Reduction			62.86

Comments: The spindle is presently a machined part. A very reliable specialty vendor has quoted the above proposed figure as a die casting. The tool charge will be $1,600.00.

J. P. Ettinger
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Mixer
Swivel Stud
A-5434088
250,000/year

Estimated Annual Savings - $32,075.00

Proposal I - Estimated Annual Savings $32,075.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$120.75	$7.54	$128.29
Proposed	---	---	---
Reduction			$128.29

Comments: If the new modern base is adopted the swivel stud will be eliminated. This savings has been incorporated into the total of the "Base" suggestion sheet.

Proposal II - Estimated Annual Savings - $18,385.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$120.75	$7.54	$128.29
Proposed	47.20	7.54	54.75
Reduction			$ 73.54

Comments: The swivel stud is presently a purchased part. Another reliable vendor has quoted the proposed figure.

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13M12 Mixer
Bowl Pan Assembly
4176133-1
250,000/year

Estimated Annual Savings - $17,075.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$96.80	$56.50	$153.30
Proposed	85.00	---	85.00
Reduction			$68.30

Comments: This bowl pan is presently an assembly of (4) parts. We have the proposed quotation on this part molded of plastic with the pivot as an insert. There will be a tool charge of $2141.00.

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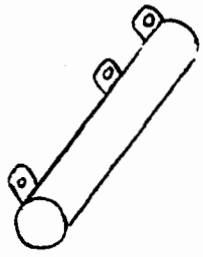
13M12 Mixer
Resistor
4176727-4
250,000/year

Estimated Annual Savings - $9,125.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$383.00	—	$383.00
Proposed	346.50	—	346.50
Reduction			$ 36.50

Comments: This resistor is a purchased part. Another reliable vendor has quoted the proposed figure.

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Value Analysis Unit
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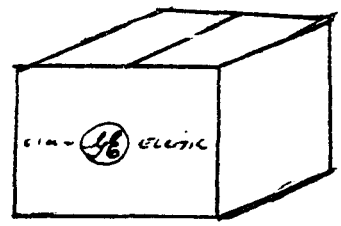
13M12 Mixer
Packing
K-5409892
250,000/year

Estimated Annual Savings - $5,125.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$369.83	---	$369.83
Proposed	349.30	---	349.30
Reduction			$ 20.50

Comments: The corrigated boxes for packing are presently being purchased. Another reliable vendor has quoted the proposed figure. There will be a tool charge of $85.00.
The packing containers are now being studied by Mr. Paul D. Vogt, Packaging Consultant of the Manufacturing Services Division, who has suggested that a redesign of the packaging could result in a further possible savings.

J. P. Ettinger
Materials Services Dept.
Value Analysis Unit
June 1953

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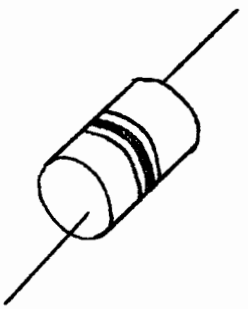
13M12 Mixer
Condenser
5434004-3
250,000/year

Estimated Annual Savings - $4,615.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$92.21	—	$92.21
Proposed	73.75	—	73.75
Reduction			$18.46

Comments: This condenser is presently a purchased part. Another reliable vender has quoted the proposed price.

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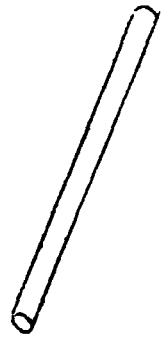
13M12 Mixer
Intermediate Gear Stud
A-5434035
250,000/year

Estimated Annual Savings - $3,505.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$29.47	—	$29.47
Proposed	15.45	—	15.45
Reduction			$14.02

Comments: A reliable vendor has quoted the proposed figure.

J. P. Ettinger
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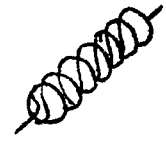
13M12 Mixer
Brush Spring
5434065
500,000/year

Estimated Annual Savings - $2,415.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$7.35	—	$7.35
Proposed	2.52	—	2.52
			$4.83

Comments: This spring is a purchased part. Another reliable vendor has quoted the proposed figure.

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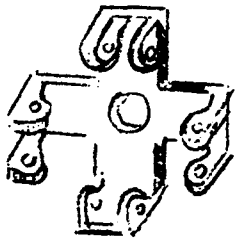
13M12 Mixer
Governor Body
A-5434027
250,000/year

Estimated Annual Savings - $2,212.50



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$19.00	$23.48	$42.48
Proposed	10.15	23.48	33.63
Reduction			$ 8.85

Comments: **A reliable specialty vendor has quoted the above proposed figure. The tool cost will be $1300.00.**

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Value Analysis Unit
June 1953

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13M12 Mixer
Control Knob Button
4176746-2
250,000/year

Estimated Annual Savings - $1,340.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$ .86	$15.30	$16.16
Proposed	10.80	---	
Reduction			$ 5.36

Comments: This button is a purchased part. Another reliable vendor has quoted the proposed figure on a chrome plate button which will do the job and save $1,340.00 per year.

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Value Analysis Unit
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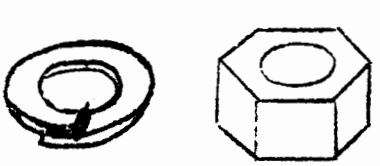
13M12 Mixer
Lock Washer & Nut Adjusting Stud
171674
6,000/year

Estimated Annual Savings - $1,057.50



Present

Proposed

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$ 6.07	—	$6.07
Proposed	1.84	—	1.84
Reduction			$4.23

Comments: At present a lockwasher and nut are being used. We propose using a regular type palnut #38532.

J. P. Ettinger
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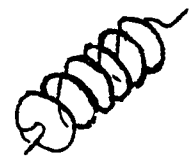
13M12 Mixer
Ejector Spring
5434090
250,000/year

Estimated Annual Savings - $1,035.00



	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$ 6.00	---	$ 6.00
Proposed	1.86	---	1.86
Reduction			$ 4.14

Comments: This spring is a purchased part. Another reliable vendor has quoted the proposed figure. There will be a tool charge of $245.00.

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13M12 Mixer
Governor Spring
5434089
250,000/year

Estimated Annual Savings - $875.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$14.80	—	$14.80
Proposed	11.30	—	11.30
Reduction			$ 3.50

Comments: This is a purchased part. Another reliable vendor has quoted the proposed figure.

J. P. Ettinger
Materials Services Dept.
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13 12 Mixer
Latch Pin
A-5434087
250,000/year

Estimated Annual Savings - $325.00

	Cost in dollars/M		
	Direct Material	Adjusted Labor	Shop Cost
Present	$38.00	$ .09	$38.09
Proposed	36.70	.09	36.79
Reduction			$ 1.30

Comments: This latch pin is a purchased part. Another reliable vendor has quoted the proposed figure. There will be a tool charge of $93.00.

J. P. Ettinger
Materials Services Dept
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Suggested Items for Analysis

Shaft & Commutator Assembly

Possible saving on the shaft may result from contacting companys who employ "Turnomatic Lathes." The names of the company closest to you can be furnished by the Turnomatic Co. in Brockport, New York.

It is also felt that the use of a dipped armature will not only result in a saving, but a quieter motor.

Redesign of Packing Carton

It has been suggested by Mr. P. D. Vogt, Packaging Consultant of the Manufacturing Services Division that a redesign of the packaging could result in a possible saving. The packaging is now being studied in the Packaging Laboratory in Schenectady and results should be available soon.

Motor Housing

1. Combine two brush holder and bearing retainer into one piece.
2. Combine gear drive housing and gear bearing retainer into one casting.
3. Eliminate two of the four screws holding field in housing.
4. Make the thrust plate of thinner materials, plastic or cardboard.
5. Use fibre glass in place of felt wick.

Lower Case

A further saving in the cost of the Lower Case may be expected by forming the shell and assembly into it a molded (plastic) Gear Case. This is now being developed by Charles J. Pankow, Chief Engineer of "The Crosby Co." of Buffalo and results should be in the near future.

Beaters

Savings can be expected from the work being done on the beaters by "E.H. Titchener & Co." of Binghamton, N. Y. - Wire fabricators.

Gears

Look to "Shakeproof, Inc." of Elgin, Illinois for a brand new process of stamping thin Helical gears of textolite.

J. P. Ettinger
Materials Services Dept.
Value Analysis Unit
June 1953