

DEPT.—LOCATION—DATE

Value Service - Schenectady
January 17, 1962

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JAN 18 1962

C. W. BRYANT

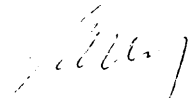
SUBJECT

Mr. C. W. Bryant
Materials Service
NEW YORK OFFICE

Our work for Lisle Hodell was a very valuable and interesting challenge. His letter gives you a general idea of its outcome.

The motor size we were working on is 1/3 h. p. and they considered the production of a million per year, so each penny is \$10,000. Under the circumstances, you can get an approximate evaluation of our effort if they carry through.

Attached also is my copy of computations which we created and of exact studies that we established, pursued, and caused to be pursued during the program. You might return it to me after you have noted it as I have no other copy. Figures are in prime cost so that the actual benefit to the business would be larger than the amounts indicated.


L. D. Miles/M
Att.

SUBJECT

●
Fort Wayne, January 12, 1962

Mr. L. D. Miles,
Manager-Value Service.
Schenectady Office

COPIES:

H. A. MacKinnon, 18-2
L. R. Beard, T. St.
W. R. Boggess, T. St.
E. H. Henry, T. St.
L. W. Kuttner, T. St.
W. L. Leifheit, T. St.
File

Dear Larry:

Upon my return from our Clearwater meeting, which I regret took me away at a time when I most wanted to be here to be with you, I called our boys together to make a review of their findings.

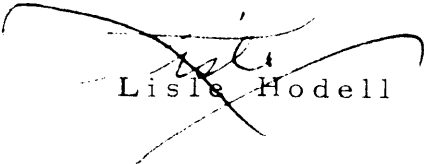
First of all, they were thrilled with this experience. You and your two men, Messrs. Hvamb and Young did a superb job, for which we are greatly indebted to you and want to express our sincere thanks.

I realized at the time I asked you to come to Ft. Wayne that this was an unusual assignment in that we have been working on this new design for more than a year, using all the techniques, but still it was felt most desirable to give one more good look before we froze the design and started to order tools.

Attached are three copies of the summary of the Value Analysis Study made January 3rd and 4th. If you take all the possible ideas and evaluate them long range, short range and blue sky, they amounted to 74¢. However, to be more realistic, if you take those items it appears we can work out immediately, this would amount to 39¢. Then if you want to put a factor of safety in, that two-thirds of them can be put into production with the new design, it appears as though we would save at least 26¢. So by any of these yardsticks, you can see the analysis was well worthwhile.

This is a good thing for an organization because it stimulates thinking and this is one we cannot put a value on because there is no end to what may come from this type of thinking. It is good for an organization and we never want to reach a point where we cannot continue to see ahead. I, for one, don't believe we are going to run out of good ideas.

Larry, will you thank Svein and Link, for we all have the highest admiration for your team and the manner in which you attacked a difficult assignment. Thanks again.


Lisle Hodell

LH:MG

Attachment



MOTOR VALUE STUDY

January 3-4, 1962

Present:

- Team 1: B. H. Bradbeer (Mktg.)
R. L. Kierspe (Mfg.)
C. E. Linkous (Engrg.)
- Team 2: E. R. Cunningham (Engrg.)
S. Hvamb (Mfg. Services)
P. E. Merkey (Mfg.)
C. W. Reiter (Finance)
- Team 3: R. J. Sollohub (Mfg.)
G. D. Willits (Engrg.)
L. Young (Mfg. Services)
- Team 4: A. W. Bireley (Engrg.)
E. F. Harrison (Mfg.)
N. T. Horton (Mktg.) Part Time
- Others: L. R. Beard (Engrg.) Part Time
L. W. Kuttner (Mfg.) Part Time
L. W. Miles (Mfg. Services)

1. Cost data prepared for the 1/4 hp special service motor model 2L114 showed

Total Material	\$280.26/100 motors
Total Operation Labor	74.84/100 motors
Pack, Box & Ship	<u>17.00/100 motors</u>
Total	\$372.10/100 motors

2. A bogey of 74 cents cost elimination per motor was set as the objective of the meeting. This bogey was to be accomplished in the following motor component areas, in the amounts indicated and by the teams assigned.

<u>Function</u>	<u>Allocated Cost Of Function</u>	<u>Cost To Be Removed Per Motor</u>	<u>Cost Saving \$1,000/Yr.</u>	<u>Assigned To Team</u>
Bearings	30¢	10¢	\$100	1
Enclosure & Support	48¢	24¢	240	1
Transmit Torque	9¢	-	-	1
Handling Current	110¢	15¢	150	2
Handling Flux	60¢	-	-	2
Electrical Connectors	35¢	10¢	100	3
Mounting	35¢	8¢	80	4
Provide Appearance	10¢	-	-	4
Box, Pack & Ship	17¢	2¢	20	4
Assemble, Test, Etc.	<u>20¢</u>	<u>5¢</u>	<u>50</u>	4
Total	\$3.74	74¢	\$740	

3. Accomplishment

Team 1 (Total Bogey 34¢)

An entirely new and different motor construction was presented with an estimated cost 54¢ less than model 2L114. This will require a complete and detailed development program to accomplish after a product planning study to determine its market acceptability. The possibility of a lighter duty bearing in the OPE end shield was discussed and should be considered.

Team 2 (Total Bogey 15¢)

- a. Lamination Steel: Close up progressive die move 0.2" by use of special notch at two clamp bolt notches. Rotate every 4th punching 90° to get support for shell.

b. Insulation System:

	<u>Integral Insulation</u>		<u>With Mylar And Std. Cuff</u>		<u>Mylar With New Flat Forming And With Integral Wedge</u>	
	<u>M</u>	<u>L</u>	<u>M</u>	<u>L</u>	<u>M</u>	<u>L</u>
Insulation	10.77	4.57	7.27	0.73	5.27	2.00
Additional Copper	-	-	3.00	-	-	-
Wedge	<u>1.19</u>	<u>-</u>	<u>1.19</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total	11.96	4.57	11.46	0.73	5.27	2.00
Saving	-	-	0.50	3.84	6.69	2.57

Cost Saving With Std. Mylar - 4.34¢

Cost Saving With Special Mylar - 9.26¢

c. Eliminate Leads & Terminals:

Bring 4 motor winding wires directly to relay.

Estimated Saving: Material	2.83¢
Labor	<u>3.98¢</u>
Total	6.81¢
Less Estimated Extra Cost	<u>1.81¢</u>
Net Expected	5.00¢

d. Use Start Copper During Running:

	<u>M</u>	<u>L</u>
Start Winding	20.26	5.28
With Redistributed Main & Connections	<u>10.26</u>	<u>5.28</u>
Saving	10.00	-

NOTE: Discussion after the meeting indicates that realization is unlikely at present specified performance levels.

e. Eliminate Tying Of End Turns - 2.00 Labor

NOTE: Tying is not called for on drawings.

f. Total Team 2 Accomplishment: 23.01 With Std. Mylar
27.93 With New Mylar Forming

Team 3 (Total Bogy 10¢)

Alternatives presented:

- a. Save 10¢ by in-plant molding and by eliminating one coil connection, and pick up coil lead insulation.
- b. Save 11¢ by change to new switch and mechanism.
- c. Save 2¢ additional to b. on one-half the motors by making overload for assembly to new switch-terminal board.

Team 4 (Total Bogy 15¢)

	<u>M</u>	<u>Save</u>	<u>L</u>
a. Rubber stamp connection diagram inside terminal box cover -	0.20¢		
b. Automatically make rotation in test and eliminate label -	0.07¢		
c. Make NP of printed & plated steel plate instead of etched aluminum -	1.38		(0.12)
d. Eliminate clamp nuts by threading end shield -	.56		
e. Stamp lubrication instructions on end shield -	.63		(0.13)
f. Unbonded resilient ring -	3.28		-
g. Save base material by 3-piece fabrication -	3.15		-
h. Simplify & shorten packing box -	<u>2.00</u>		<u>-</u>
Total	11.27		(0.25)
j. Net Saving		11.02¢	

4. Summary

	<u>Bogy</u>	<u>Estimated Available</u>	<u>Estimated Realizable*</u> <u>On 2114 Program</u>
Team 1	34¢	54.00¢	
" 2	15¢	27.93¢	
" 3	10¢	10.00¢	
" 4	<u>15¢</u>	<u>11.02¢</u>	
Total	74¢	103.95¢	26.00¢*

*Omitted Team 1 report, d. of Team 2 report, b. and c. of Team 3 report, and multiplied total by 0.67 to allow for contingencies.

5. Action Required

- A. Lamination Steel - Mfg. Engineering design tools to shorten die move and rotate punchings. (1.67¢)
- B. Insulation System - Mfg. Engineering design tools to form mylar slot liner-wedge and wind. (9.26¢)
- C. Eliminate Leads & Terminals - Advance Engineering prepare designs and Mfg. Engineering develop process. (5.00¢)
- D. Eliminate End Turn Ties - Mfg. Engineering develop end turn pressing. (2.00¢)
- E. Reduce Relay Case Cost - Mfg. Engineering investigate problems of in-plant molding. (5.5¢)
 - Advance Engineering & Mfg. Engineering prepare and evaluate designs to eliminate one coil connection and insulation sleeves. (4.5¢)
- F. Rubber Stamp Connection Diagram - Advance Engineering prepare diagram. Mfg. Engineering develop process. (.20¢)
- G. Automatically Mark Rotation - Mfg. development in process. (.07¢)
- H. Steel NP - Advance Engineering prepare and evaluate designs. (1.26¢)
- I. Eliminate Clamp Nuts - Advance Engineering prepare designs and Mfg. Engineering develop process. (.56¢)
- J. Stamp Lubrication Instructions On End Shields - Advance Engineering prepare designs with Mfg. Engineering. (.50¢)
- K. Unbonded Resilient Ring - Advance Engineering prepare designs. (3.28¢)
- L. Save Base Material By 3-Piece Fabrication - Advance Engineering develop designs and process with Mfg. Engineering. (3.15¢)
- M. Simplify & Shorten Packing Box - Mfg. Engineering (2¢).

A. W. Bireley

January 8, 1962