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48-12

STATUS VALUE ANALYSIS WORK -- 119 RADIO RECEIVER

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PURPOSE: To discuss each possibility of purchase cost reduction and assign the responsibility for following it to its conclusion-- to the proper person.

ITEMS DISCUSSED AND DISPOSITION

1. Back Plate #76J375 - This part uses 2.6¢ worth of steel but, when fabricated, costs 10½¢ shop cost. (All costs when labor operations are included throughout this report - are at shop cost.) Other costs are:

<u>Process</u>	<u>Cost</u>
Plating	3¢
Black Painting	1.3¢
Mounting protective cardboard	.6¢

This gives a total cost of slightly over 15¢ which is considered too high.

It is found that 2½¢ of the cost is for deburring the top of the plate. It was suggested that strip steel with a mill edge similar to samples provided be used and that the dies be so constructed that this edge will be in the proper place for contact with the slider. A suggested re-planning which includes modifications of the supporting angle at the bottom of the plate was supplied to Mr. Kindig who will follow this matter with Mr. Chounds and others. The new cost after appropriate dies would be 4½¢, in lieu of 10½¢. This price includes an extra of ½¢ per pound on the steel which, under present circumstances, is necessary in order to insure getting it with the desired edge. The plating cost of 3¢ will be checked into by Mr. Kindig.

Although suitable black etches for copper materials have been well-known for some time, similar etches for ferrous products have not been available. However, one company in Bridgeport now advertises and represents that they have a chemical dip for use on steel which will leave a thin tenacious black lustre which both gives good appearance and provides good corrosive resistance. It is possible this might be substituted for both the plating and the painting. Mr. Peterson will investigate.

The back plate is of .050" steel in order to provide strength and rigidity for mounting the dial cord pulley. The simple mounting bracket for the dial light could be extended slightly and the pulley mounted thereon. This would allow two things. First, the cord could be assembled to the radio before the back plate was assembled, which might eliminate assembly time; and, secondly, more freedom could be allowed in the design of the back plate. It could be made of thinner material possibly with less reinforcing and could, if desired, be made of other material such as plastic. If this type of assembly offers sufficient advantages, Mr. Miner will follow through on it.

2. Pointer - The United Carr Corp. have a slider and pointer which is so constructed that it is less sensitive to roughness on the back-plate top. They are supplying a quotation to Paul Blum who will provide data upon it for approval if, as is indicated, it is lower in cost than our present pointer.

3. Dial Spring #66J617 Pt.3 - The present dial spring costs .9¢. As it is specified, it must be made of music wire. The cost of this spring is considered high considering the job it has to perform. It was suggested that, instead of music wire, standard hard-drawn spring steel be specified. We expect that this would reduce the cost to about half. Our spring supplier will be requested to provide samples of a spring made from spring steel, and other suitable quotations will be secured by Mr. Coffman.

4. Dial Cord - The Du Pont Company in promoting its new products has offered a nylon cord which has a very slight amount of elasticity and which, it is claimed, does not take a permanent set. It was reviewed that the characteristics of this cord are very important and that either the present nylon with a fiber-glass core; or pure silk cord performs satisfactorily. If Du Pont believes their new material can perform suitably in this market, eliminating the spring and simplifying the mounting, samples will be provided to Mr. Miner.

5. Shaft #K66J876 P1 - As it now must be made, this shaft is a rather complex automatic screw machine part well bought at about 3¢. It must have a broached knurl with a slit end for the knob, a suitable spool for winding the cord and suitable machining to receive the C-fastener for assembling to the panel. Some of the suggestions considered were:

- a) Use thermo-plastic knobs with split mounting hubs in conjunction with the Tinnerman spring steel band. This assembly mounts on a plain shaft and is used by some. Main objections are two-fold. (Cost of fastener is .3¢.)

First, that while probably sufficient rotational torque is provided, approximately equal force is required to press on the knob and to withdraw it and this puts some strain on the parts of the knob and the parts of the chassis which mount the shaft. The other objection is that the arrangement is usable only with the thermo-plastic knob and for reasons of standardization, it is desirable to have shafts adaptable to either thermo-plastic or thermo-setting material.

- b) It was suggested that the mounting bracket which is now made in two operations be changed to a U-shape so that both holes which mount the shaft are in the small bracket (using a clearance hole in the chassis), to reduce cost of making the bracket and reduce difficulties of alignment. It was further brought out that the present L-bracket could be made at lower cost in a one-operation die by some die changes. It was further suggested that a fastener be considered which would employ some new and well-known principle and snap into punched holes in the chassis to eliminate the welding operation. This is being considered by suitable fastener suppliers and information and samples, if desirable, will be provided to Messrs. Kindig and Peterson, shortly.

It was suggested that if the method of supporting the knob could be changed, a number of possibilities for cost reduction on the shaft are available. A plastic shaft which would cost slightly over  $\frac{1}{2}\phi$  would be available and either die cast shafts or shafts fabricated of thin metal would be available at about half the present shaft cost. Some further suggestions along this line will be developed.

6. I.F. Can #26J47-4 - Present shop cost of the I.F. Can complete with spade bolts is  $6\phi$ . This cost was considered high. Normal cans of this type should cost between  $2\phi$  and  $2\frac{1}{4}\phi$  without holes and about  $\frac{1}{2}\phi$  more with holes in the sides and the top punched. A set of spade bolts and rivets should cost between  $.3\phi$  and  $.4\phi$  making a total material cost of about  $3\frac{1}{4}\phi$ . The cost of assembling the spade bolts to the can is about  $1\frac{1}{2}\phi$  which would bring the price to  $4\frac{3}{4}\phi$  instead of  $6\phi$ . Mr. Kindig will investigate the present cost of  $6\phi$ . It was further developed that the most desirable arrangement would be a spring clip which would eliminate the use of the spade bolts and mount the can to the chassis in a manner which holds it rigidly against the chassis. The Purchasing Department will endeavor to provide proposals and samples of such suitable clip to Mr. Miner. The clip should cost in the neighborhood of  $3/4\phi$  and would eliminate the purchase and assembly of the spade bolts and the purchase and assembly of the nuts and washers on the spade bolts and substitute a snap assembly job.

7. Pilot Light K-63J465-2, 47 - Although one pilot light costs 4.9¢ and the other 7.2¢, the difference in the length of cord on the longer one did not justify the differential in price. Mr. Kindig will handle.

8. Dial Cord Pulley K-59J323-22 - For different sizes of pulleys, various methods of manufacture are most economical. For the  $\frac{1}{2}$ " size used on this radio, a fabricated pulley costs \$3.60 M as compared to the solid pulley at \$7 M. Mr. Miner has samples of the fabricated pulley for tests and will advise Mr. Blum concerning its suitability for use.

9. Pilot Light Mounting Arrangement - The pilot light is now mounted on a small mounting strip of flat steel which is welded to the chassis. It was suggested that the  $\frac{1}{2}$ ¢ cost of this strip and the 1¢ cost of mounting it, might be eliminated by a slightly different construction. The suggestion was to purchase the dial lights with their mounting arrangement extending downward rather than laterally and for a suitable distance so that, with the aid of a rectangular punched slit in the top of the chassis near its front edge, this mounting arrangement could be slipped through and mounted directly on the front of the chassis. Mr. Johnson will provide a sketch to Mr. Dowd and Mr. Dowd will determine if the cost of the dial light socket would be increased by such arrangement. Based on this information, Mr. Johnson will know whether to further consider the change.

10. It was noted that present production uses two knobs, 42J965, with white "rub-ins." These knobs cost 1¢ extra. Mr. Miner advised that the Off-On volume control knob does not need an arrow and will have suitable drawing changes made so that it will be eliminated on succeeding production.

11. Compared to other similar products, the price of \$1.50 per thousand on the small C-retaining ring, K-59J474-1, is out of line. Nevertheless, that is the price which the G.E. Co., in its various units, now pays. Some work is being done with suppliers to secure more appropriate pricing on this type of ring.

12. Oscillator coil form #24J122 - Two of these are used per radio. The material consists of a paperboard form costing .1¢, and 4 terminals which cost slightly less than .1¢. Total material cost is slightly less than  $\frac{1}{2}$ ¢. After the 4 terminals are assembled to the coil form, however, the shop cost becomes 2 $\frac{1}{2}$ ¢ per coil. It was felt that this item is sufficiently standard so that automatic or at least semi-automatic equipment should be provided to assemble the terminals to the coil form.

The Purchasing Department will provide suitable information to Mr. Miner.



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