

								Page 4	
<b>GLE LENKURT</b>									

Not COMPONENT-TYPE IN LENCAN - REFERENCE ONLY - REV-134-77  
L,B COST

F.	Top hat I.C.	\$ .08
G.	14 pin in-line I.C.	\$ .06
H.	Hybrid Assembly	\$ .05
I.	Inductors	\$ .04
J.	Stiff lead components other than inductors (Transformers, relays, pots, etc.)	\$ .03
K.	Light emitting diodes	\$ .03

**3. SECOND ASSEMBLY OPERATIONS**

3.01 Mount components to p.w. board. Costs are for masking and cleaning holes, mounting the components, soldering, and cleaning.

<u>TYPE COMPONENT</u>	<u>L,B COST</u>
A. LA or LB relay	\$ .17
B. Insulated jumper or 2-lead component	
(1) Connected from pad to pad on p.c. board	\$ .10
(2) Connected from p.c. pad to terminal, as on faceplate mounted component.	\$ .12
(3) Connected from terminal to terminal	\$ .12
C. Coaxial jumper, single conductor.	\$ .50
Connect conductor to p.c. pads, ground lugs to terminals.	
D. Push button switch	\$ .17
E. Heat sink to transistor. Fan type, using silicone	\$ .04

3.02 Faceplate and faceplate mounted parts. Costs do not include wiring.

A.	Mount faceplate to p.w. board	\$ .08
B.	Mount one jack to faceplate	\$ .10
C.	Assemble test jack to faceplate	\$ .05
D.	Assemble threaded component to faceplate	\$ .07

3.03 Other Assemblies

A.	Assemble A1 and A2 boards to faceplate and two studs	\$ .38
B.	Assemble two parts using one screw and nut	\$ .08
C.	Assemble two parts using two screws and nuts	\$ .12

**4. REWORK AND TOUCH-UP COSTS**

A. Refer to Technical Standard 562-10101-01, para. 3.

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FORM A-636 (REV 1-71)

1	6/77	Ka			Page 1 of 1
<b>GIB LENKURT</b>					

NOT FOR USE IN LENCAN - REFERENCE ONLY - RES-13950  
REWORK OF PRINTED WIRING BOARDS

1. GENERAL

1.01 This standard provides the general cost guidelines for rework of printed wiring boards.

2. COSTS

2.01 Basic handling cost for a batch of boards \$2.00  
 Includes pull boards from stock, take to rework area, take boards back to stock after rework

2.02 Drill out holes or drill additional holes  
 Constant cost for setting up to do the work/batch \$1.00  
 Constant cost for handling each board \$ .01  
 Cost for each hole drilled out or added \$ .02

2.03 Cut a trace  
 Constant cost for setting up to do the work/batch \$1.00  
 Constant cost for handling each board \$ .01  
 Cost for each trace cut \$ .03

2.04 Change board marking using rubber stamp  
 Constant cost for setting up to do the work/batch \$ .50  
 Constant cost for handling each board \$ .01  
 Cost for removal of issue number or suffix number \$ .02  
 or component designation/each  
 Cost for remarking of issue number or suffix number \$ .03  
 or component designation/each stamping

2.05 Add an eyelet or terminal  
 Constant cost for setting up to do the work/batch \$1.00  
 Constant cost for handling each board \$ .01  
 Cost for installing each terminal or eyelet \$ .01  
 (Add 1/2c for cost of each terminal or eyelet)

2.06 Recess Gold Tabs  
 Constant cost to set up to do the work/batch \$2.00  
 Cost for notching/notch \$ .05

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FORM A-636 (REV 1-71)

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1	6/77	Kol			Page 1 of 1
<b>GIE LENKURT</b>					

**NOT FOR USE IN LENCAN - REFERENCE ONLY - RES 13951  
REWORK OF PRINTED WIRING BOARD ASSEMBLIES**

**1. GENERAL**

1.01 This standard provides the general cost guidelines for rework of printed wiring board assemblies.

**2. COSTS**

2.01 Basic handling cost for a batch of board assemblies \$4.00  
Includes pull board assemblies from stock (if required), locate boards in assembly or panel test, take to rework area, take boards back to appropriate area after rework.

2.02 Add p.w. board jumpers/jumper \$ .09  
Includes bare strap or insulated jumper installation and hand solder two points.

2.03 Add a discreet two lead component (resistor, capacitor, diode, etc.) and hand solder two points. \$ .09  
Note: Does not include component cost.

2.04 Remove a discrete two lead component from the assembled board and clean solder off pads or terminal \$ .09

2.05 Change board assembly marking using rubber stamp \$ .02  
Remove issue number, suffix number or component designation/each  
Stamp issue number, suffix number or component designation/stamp \$ .03

2.06 Remove a multiple lead component (I.C., hybrid, relay, etc.) \$ .12  
Install a multiple lead component including hand soldering \$ .12

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FORM A-636 (REV 1-71)

ISSUE	DATE	APPROVAL	TECHNICAL STANDARD	502-10101-02
2	6/77	Rd		Page 1 of 2
			<b>GIB LENKURT</b>	

**PRINTED WIRING BOARD ASSEMBLY COSTS**

**NOT FOR USE IN LENCAN - REFERENCE ONLY - RES 13947**

**1. GENERAL**

- 1.01 This standard provides the general cost guidelines for the assembly of components on printed wiring boards.
- 1.02 First assembly operations include preforming and precutting component leads, "drop-in" of the components into the board, wave solder, lead sawing, and cleaning after wave solder. This process is the most efficient and least cost method of assembling components to p.w. boards.
- 1.03 Second assembly operations include mounting components to the board which cannot be first assembled, because they would be damaged by the wave solder or cleaning processes. They also include mounting components to faceplates, assembling multiple board units, and interconnecting with jumpers. Second assembly operations are manually performed. Therefore, they are fairly expensive.
- 1.04 Good progress has been made in recent years by component manufacturers in developing parts to replace those that are faceplate mounted and are connected to circuitry by jumper wiring. The new components are mounted directly onto the board. They reduce assembly cost by eliminating the hand wiring. Some of them can be first-assembled. They may permit further cost reduction in some design by eliminating the need for faceplates. They include switches, jacks, pots, LEDS, etc. Recently designed Lenkurt equipment makes good use of these new components.

**2. FIRST ASSEMBLY COSTS**

- 2.01 The following costs include labor and burden for lead forming, drop-in insertion, wave soldering, cleaning, and touch-up. The guidelines assume the use of the "Progressive Assembly Line". With this process the p.w. boards progress by conveyor past the assembly operators, through the wave solder machine, lead cutoff-saw, and cleaners without being handled manually. Differences in assembly cost for the various components is mainly due to lead forming. The actual insertion cost is about the same for all types of components.

COMPONENT TYPE

L,B COST

A.	Small axial lead, horizontal mount (Fractional watt resistor, diode, etc.)	\$ .03
B.	Small axial lead, vertical mount	\$ .03
C.	Large axial lead. (Watt resistor, axial lead- capacitors, etc.)	\$ .04
D.	Transistor, T0-18 E - T05 or T0-39	\$ .04 \$ .06

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FORM A-636 (REV 1-71)