

## **REPAIR & SERVICING OF ELECTRICAL APPLIANCES**

SERVICE CAPACITY : Repairing of Appliance – 5000 (Per annum)

VALUE : Rs. 27, 50,000/-

YEAR OF PREPARATION : 2020 – 2021

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## 1. INTRODUCTION

In almost every home there are horde of appliances that practically remain in use throughout the day to provide us the comfort and easiness of life that we deserve. We are really grateful to these appliances which are necessity of every home. And if you are grateful to such appliances then you must care for them too. The breakdown of electrical domestic devices is inevitable as machines after long run tend to break down due to wear & tear. At times they break down early due to over use. The electrical appliances like mixer/ grinder, geysers, water heater, fan, electric iron, etc. are widely used in almost every household. The major manufacturers are Usha Electrical, Bajaj Electrical, Crompton Greaves, Onida, Videocon, LG etc. These electrical appliances do need periodic servicing, maintenance and repair actively. Though there are a number of authorized repair & servicing centers, provided by the authorized dealers network but still there is wide spread need of the repair & servicing centers to cater the need of repair and servicing activity for these appliances specially in semi-urban and rural areas

## 2. MARKETPOTENTIAL

This is a service-oriented industry to cater to the needs of the repair & servicing of Electrical Appliances. There is hardly any household which does not possess these items. In course of time, these items/ appliances need periodic servicing and repair requirement. Therefore, there is a tremendous scope for the repair & servicing centers, especially in semi-urban and Rural Areas. This can be undertaken by the educated-unemployed youths of the area with a little skill development without much capital requirement.

### 1. BASIS ANDPRESUMPTIONS

- i. The basis for calculation of production capacity has been taken on single shift basis on 75% efficiency.
- ii. The maximum capacity utilization on single shift basis for 300 days a year. During first year and second year of operations the capacity utilization is 60% and 80% respectively. The unit is expected to achieve full capacity utilization from the third year onward.
- iii. The salaries and wages, cost of raw material, utilities, rents, etc. are based on the prevailing rates in and around Delhi. These cost factors are likely to vary with time and location.
- iv. Interest on term loan and working capital loan must be preferably

current

rate. Otherwise, the rate of 12.5% on an average may be taken. This rate may vary depending upon the policy of the financial institutions/agencies from time to time.

- v. The cost of machinery and equipments refer to a particular/make model and prices are approximate.
- vi. The break-even point percentage indicated is of full capacity utilization.
- vii. The project preparation cost etc. whenever required could be considered under pre-operative expense.

#### 4. IMPLEMENTATION SCHEDULE

The major activities in the implementation of the project have been listed and the average time for implementation of the project is estimated at 12 months:

Sl. No.	Activity	Period (in months) (Suggestive)
1.	Preparation of Project Report	1
2.	Registration and other formalities	1
3.	Sanction of loan by financial institutions	3
4.	Plant & Machinery i. Placement of orders ii. Procurement iii. Power connection /Electrification iv. Installation/Erection of machinery/ Test Equipment	1 2 2 2
5.	Procurement of raw material	2
6.	Recruitment of Technical Personnel etc.	2
7.	Trial/Commercial Operation	11 <sup>th</sup> – 12 <sup>th</sup> month

Note:

- 1. Many of the above activities shall be initiated concurrently.
- 2. Procurement of raw materials commences from the 8<sup>th</sup> month onwards.

3. When imported plant and machinery are required, the implementation period of project may vary from 12 months to 15 months

## **5. TECHNICAL ASPECTS**

### **5.1. Process of Servicing**

Basically the process of repairing and servicing of Electrical Appliances is servicing in nature. The periodic servicing of the appliances can be carried out at a time interval as and when the customer brings the appliances for servicing. The appliances i.e. electric fans, mixer, geysers, iron etc. which is to be serviced is de-assembled. Then it is overhauled and worn out parts like ball bearings, bushes etc. are replaced with the new one. Finally it is lubricated and is re-assembled and tested. On the other hand, under repairing activity, after testing and fault diagnosing, the repair activity can be carried out by rectifications or replacement of worn out/defective parts. Apart from these, the re-winding of burnt armature of the motorized appliances is also carried out.

### **5.2. Quality Control and Standards**

There is no relevant specification of Bureau of Indian standard governing the Repairing and Servicing of Electrical Appliances. However IS: 302:2008 (Part 1) & IS 302- (PART 2) with 35 sections for various appliances is applicable as safety standard. The servicing unit shall have in house testing facility for conducting the leakage current test and protection against electric shock with other equipment as per above specification.

### **5.3. Service Capacity**

Quantity	:	5,000 Repairing & Servicing of Appliances
Value	:	Rs.27, 50,000/-

### **5.4. Motive Power                    5KW**

### **5.5 Pollution Control**

The Repairing/ Servicing Process of electrical appliance does not pose any problems for pollution hence there is no need to install the pollution control

equipments. However the entrepreneurs are advised to take "No Objection Certificate" from the State Pollution Control Board.

## **5.6. Energy Conservation**

The following steps may help for conservation of electrical energy:

- i. Adoption of energy conserving technologies, repairing/ servicing aids and testing facilities.
- ii. Efficient management of Repairing/ Servicing Process and systems, QC and testing equipments for yielding maximum EnergyConservation.
- iii. Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and de soldering stations.
- iv. Use switching on-off of the lights; use of compact fluorescent lamps wherever possibleetc.

## 6. FINANCIAL ASPECT

### 6.1. Fixed Capital

#### Land & Building:

S.NO	DESCRIPTION	Area(Sq. Mtr.)	Rent/ Sq. Mtr.	Rent/month (Rs.)
1	Work Shed	50		
2	Office, Stores	10		
3	Total Built up area on Rent	60	200	12,000

**Total 12,000**

#### 6.1.1. Machinery and Equipments

##### (a) Servicing Equipments

S.No.	Description	Qty	Rate (Rs.)	Value
1	Motorized winding machine	1	50,000	50,000
2	Manual winding machine	2	22,500	45,000
3	1/2 Inch Bench Drilling machine	1	4,500	4,500
4	Portable drilling machine	1	3,500	3,500
5	Bench Grinder 200 mm	1	5,000	5,000
6	Soldering Machine	2	1000	2,000

**Sub Total 1,10,000**

##### (b) Testing Equipments

S.No.	Description	Qty.	Rate (Rs.)	Value
7	2.5 KV High Voltage Tester	1	13,000	13,000
8	Panel board for testing	1	9,000	9,000
9	3 1/2 digit clamp meter	1	3,000	3,000
10	Megger 500 volts DC	1	14,000	14,000
11	Millimeter	1	3,000	3,000
12	Leakage current tester	1	6,000	6,000
13	Auto Transformer 10 Amps	1	4,000	4,000
14	Other misc. instruments and meters	LS	2,000	2,000

**Sub Total 54,000**

**Total 1, 64,000**

### 6.1.2. Other Fixed Assets

(c)	Power connection, erection and electrical installation (10%)	LS.	16,400
(d)	Jig, Fixture & tooling		15,000
(e)	Office equipments	L.S.	50,000
(f)	Pre-operative expenses	LS.	30,000

SubTotal 1, 11,400/-

Total Fixed Capital Rs. 2,75,400/-

### Working Capital (permonth)

#### Personnel

S. No.	Designation	No. of Persons	Salary/month Rs.	Total
1	Service Supervisor		25,000	25,000
2.	Skilled Worker & Electrician		21,000	21,000
3.	Unskilled worker		19,000	19,000

Total Rs. 65,000

Perquisite A 15% of salary Rs. 9750

Total Rs. 74,750

#### Raw Materials

S. No.	Description		Rate	Value Rs.)
1	Super Enameled Copper Wire(k	30	550	16,500
2	Ball Bearing Nos.	50	235	11,750
3	Heating Element of Electric Iron Nos.	40	120	4,800
4	Immersion Water heater for Geezer Nos.	40	150	6,000
5	Shaft, Bush, Capacitor, Field Coil, Armature, Cobon etc.		LS	8,000
6	Consumables stores & Cables, Paper Insulations		LS	6,000
7	Mechanical & Electrical Accessories, Hardware & misc		LS	8,000

Total 61,050

### Utilities

S.No.	Desert	Unit	Rate	Value
1	Electrical KWH	1,250	8	10,000
2	Water	L.S.		1,000

Total 11,000

### Other Contingent Expenses(Rs.)

1	Rent	12,000
2	Postage & Stationery	1,000
3	Telephone/ Fax charges	1,500
4	Repair & Maintenance	1000
5	Transport and conveyance charges	2,000
6	Advertisement	3,000
7	Insurance	1000
8	Consumables	1000
9	Other Misc. Expenses	2,000

Total 24,500

### **Total Recurring Expenditure (permonth)**

Total Capital Investment	Rs. 5, 13,900/-
Total Fixed Capital	Rs.2, 75,400
Total Working Capital (for 2 months)	Rs.5, 13,900
<b>Total</b>	<b>Rs. 7, 89,300</b>

### **1. FINANCIAL ANALYSIS**

#### Cost of Operation (per annum)

Total recurring cost per year	Rs.
20,55,600 Depreciation on plant and machinery A 10%	Rs. 16,400
Depreciation on jigs, fixtures, tooling etc. A 25%	Rs. 3,750
Depreciation on office equipment A 20%	Rs. 10,000
Interest on total capital investment A 12 %	Rs.94,716
<b>Total</b>	<b>Rs.21, 80,466</b>



Turnover (per annum)

Item Repair & Servicing of Electrical trances

Net Profit (per annum)

Turnover - Cost of Operation

= **Rs. 5,69,534/-**

**Net Profit Ratio**

$\frac{\text{Net profit per year}}{\text{Turnover per year}} \times 100$

= **20.71 %**

**Rate of Return**

$\frac{\text{Net profit per year}}{\text{Total Capital Investment}} \times 100$

= **72.15 %**

No Rate (Rs.) X Total sales

5,000 X 550 = 27,50,000

**Total Turn Over**

**Rs. 27,50,000**

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## Break-even Point

### Fixed Cost

Depreciation on plant and machinery A10%	16,400
Depreciation on Jigs & Fixtures A 25%	3,750
Depreciation on office equipment A20%	10,000
Interest on total capital investment H12.5%	60,969
40 % of salary & wages	3,58,800
40% of Other Contingent (Excluding Rent + Insurance)	40,800
Rent + Insurance	15,6,000
<b>Total fixed Cost</b>	<b>6,46,716</b>

$$\frac{\text{Fixed Cost}}{\text{Fixed Cost} + \text{Net Profit}} \times 100$$

$$= \frac{646720 \times 100}{1216254}$$

$$\text{B.E.P.} = 53.17\%$$

## **NAME AND ADDRESSES OF MACHINERY SUPPLIERS**

1. M/s Mangal Instrumentation

144/G., Hari Nagar, Ashram, New Delhi

**Testing Equipment**

2. M/s Acme Scientific International Plot No. S-12, Gali No.12,

Anand Parbat Industrial Area, Delhi-110005

**Testing Equipment**

3. M/s Instrument International 1702/3, 2nd FloorOppBhag-Hotel,

Bhaggiath Place, New Delhi; Phone: 23873711

**Testing Equipment**

4. M/s. Choudhary Trading Co.

A-91/3, Naraina Industrial Area, Ph. I, New Delhi

**Winding Machine**