

# Repair and Service Centre For Consumer Electronics and Tele-communication Equipment

PRODUCT CODE (ASICC)	: 97106
QUALITY AND STANDARDS	: N.A.
PRODUCTION CAPACITY	: Qty. : 3380 Nos. Jobs (per annum) Value : Rs. 8,88,000
YEAR OF PREPARATION	: 2002-2003
PREPARED AND UPDATED BY	: Small Industries Service Institute, Thrissur And Office of the Development Commissioner (Small Scale Industries ), Electronics and Electrical Division 7th Floor, Nirman Bhavan, New Delhi-110011

## INTRODUCTION

With the advancement of technology, varieties of consumer electronic products with a lot of features are being introduced in the market every day and more and more multinational companies are also entering this field. In general, the responsibility to provide after sales service rests with the supplier/manufacturer. However, adequate facilities are not available in many remote areas of the country for the servicing of consumer electronic products. This scheme gives information for setting up of a unit for the repairs of TVs, audio systems, Radios, Stereo Amplifiers, power supply systems, emergency lights, telephones and other

miscellaneous consumer electronic/instruments items.

## MARKET POTENTIAL

Consumer electronic industry constitutes the largest part of the electronics hardware sector accounting almost 38% of the total electronic production during the year 2001-02. As per data available from Ministry of communication and Information Technology, consumer electronic industry is estimated to have achieved a production level of Rs. 127 billion during 2001-02, New models of TVs, CD Players, VCD Players and other consumer electronic products are coming to the market regularly. Now the

consumer electronic technology has changed the society to such an extent that there is no house even in the remote areas without an electronic entertainment product like radio, TV, audio system, etc. These products go out of order due to various reasons like fluctuations in the electric power, improper handling, negligence in use, failure of the components etc. The service facilities offered by most of the manufacturers by and large confirm to important towns. The service facility is not available in many remote areas in the country.

### BASIS AND PRESUMPTIONS

- 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 onwards.
- iii) The salaries and wages, cost of raw materials, utilities, rents, etc. are based on the prevailing rates in and around Thrissur. These cost factors are likely to vary with time and location.
- iv) Interest on term loan and working capital loan has been taken at the rate of 16% on an average. 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 expenses.
- viii) The essential production machinery and test equipment required for the project have been indicated. The unit may also utilize common test facilities available at Electronics Test and Development Centres (ETDCs) and Electronic Regional Test Laboratories (ERTLs) set up by the State Governments and STQC Directorate of the Department of Information Technology, Ministry of Communication and Information Technology, to manufacture products conforming to Bureau of Indian Standards.

### IMPLEMENTATION SCHEDULE

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

<i>Sl. No.</i>	<i>Name of Activity</i>	<i>Period In Months (Estimated)</i>
1.	Preparation of project report	1
2.	Registration and other formalities	1
3.	Sanction of loan by financial institutions	3
4.	Plant and Machinery:	

Sl. No.	Name of Activity	Period In Months (Estimated)
	(a) Placement of orders	1
	(b) Procurement	2
	(c) Power connection/ Electrification	2
	(d) Installation/Erection of machinery/Test Equipment	2
5.	Procurement of raw materials	2
6.	Recruitment of Technical Personnel etc.	2
7.	Trial production	11
8.	Commercial production	12

### Notes

1. Many of the above activities shall be initiated concurrently.
2. Procurement of raw materials commences from the 8th month onwards.
3. When imported plant and machinery are required, the implementation period of project may vary from 12 months to 15 months.

## TECHNICAL ASPECTS

### Process of Manufacture

When faulty equipment is received from a customer, an assessment of the nature of the complaint is made. An estimate for service/repair charges is made after checking the availability of components. Then through a systematic approach the actual fault is found and rectified. The repaired equipment checked thoroughly for sufficient time before it is handed over to the customers. Minor repairs may be carried out at the premises of the customer itself. The repair and servicing of majority of consumer electronic equipment is undertaken by the skilled technicians

with the help of dedicated testing equipments.

### Production Capacity

Qty.	Value (Rs.)
3380 Nos. jobs	8,88,000

Motive Power 5KVA.

### Pollution Control

The Govt. accords utmost importance to control environmental pollution. The small-scale entrepreneurs should have an environmental friendly attitude and adopt pollution control measures by process modification and technology substitution.

India having acceded to the Montreal Protocol in Sept. 1992, the production and use of Ozone Depleting Substances (ODS) like Chlorofluoro Carbon (CFC), Carbon Tetrachloride, Halons and Methyl Chloroform etc. need to be phased out immediately with alternative chemicals/solvents. A notification for detailed Rules to regulate ODS phase out under the Environment Protection Act, 1986 have been put in place with effect from 19th July 2000.

The following steps are suggested which may help to control pollution in electronics industry wherever applicable:

- i) In electronic industry fumes and gases are released during hand soldering/wave soldering/Dip soldering, which are harmful to people as well as environment and the end products. Alternate technologies may be used to phase out the existing polluting technologies. Numerous new fluxes have been developed

containing 2-10% solids as opposed to the traditional 15-35% solids.

- ii) Electronic industry uses CFC, Carbon Tetrachloride and Methyl Chloroform for cleaning of printed circuit boards after assembly to remove flux residues left after soldering, and various kinds of foams for packaging.

Many alternative solvents could replace CFC-113 and Methyl Chloroform in electronics cleaning. Other Chlorinated solvents such as Trichloroethylene, Perchloroethylene and Methylene Chloride have been used as effective cleaners in electronics industry for many years. Other organic solvents such as Ketones and Alcohols are effective in removing both solder fluxes and many polar contaminants.

### Energy Conservation

With the growing energy needs and shortage coupled with rising energy cost, a greater thrust in energy efficiency in industrial sector has been given by the Govt. of India since 1980s. The Energy Conservation Act, 2001 has been enacted on 18th August 2001, which provides for efficient use of energy, its conservation and capacity building of Bureau of Energy Efficiency created under the Act.

The following steps may help for conservation of electrical energy:

- i) Adoption of energy conserving technologies, production aids and testing facilities.
- ii) Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation.
- iii) Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and desoldering stations.
- iv) Periodical maintenance of motors compressors etc.
- v) Use of power factor correction capacitors. Proper selection and layout of lighting system; timely switching on-off of the lights; use of compact fluorescent lamps wherever possible etc.

## FINANCIAL ASPECTS

### A. Fixed Capital

#### (i) Land and Building

Built up area	100 Sq. mts.
Office, Stores	25 Sq. Mts.
Assembly and testing	75 Sq. Mts.
Rent payable per annum	Rs. 36,000

#### (ii) Machinery and Equipments

Sl. No.	Description	Ind./ Imp.	Qty.	Value (Rs.)
1.	Oscilloscope (20MHz)	Ind.	1	20000
2.	Pattern Generator Colour	Ind.	1	65000
3.	AM/FM Signal Generator	Ind.	1	7000
4.	Colour TV Kit	Ind.	1	7000
5.	Telephone Test Instrument	Ind.	1	3000
6.	Power Supplies (30 V, 2A)	Ind.	2	9000
7.	Digital Multimeter (4½ Digit)	Ind.	1	8500
8.	Portable Drill Machine	Ind.	1	7000
9.	Soldering/De soldering Station	Ind.	7	7000
10.	High Voltage TV Probe, TV/VCR Remote tester, Transistor Tester	Ind.		1500
			Total	131500

#### (iii) Other Fixed Assets

11.	Electrification charges @ 10% of the cost of machinery and equipment			13150
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Sl. No.	Description	Ind./ Qty. Imp.	Value (Rs.)
12.	Office equipments, furniture and working table etc.		10000
13.	Tools, jigs and fixtures, soldering iron/station etc.		10000
14.	Pre-operative Expenses		10000
	Total		43150
	Total Fixed Capital		174650
	or Say		174600

## B. Working Capital (per month)

### (i) Staff and Labour

Sl. No.	Designation	No.	Salary (Rs.)	Total (Rs.)
1.	Service Engineer	1	5,000	5,000
2.	Skilled Workers	4	2,500	10,000
3.	Peon/Helper	1	1,500	1,500
	Total			16,500
	Add Perquisites @ 15% of salary			2,475
	Total			18,975
	or Say			19,000

### (ii) Raw Material Requirement (per month)

Particulars	Ind./ Imp	Cost/unit (Rs.)
1. IC's Timer, Regulator etc.	Ind.	25,000
2. Transistor, Diodes, and LEDs etc.	Ind.	
3. Resistors, capacitors, Presets, etc.	Ind.	
4. Relays and buzzer	Ind.	
5. PCB's	Ind.	
6. Electro-mechanical components like switches, knobs, sockets, fuses, etc.	Ind.	
7. Telephone receiver components and other expensive components of TV-VCR etc.	Ind.	
Total		25,000

(iii) Utilities (per month)		(Rs.)
Power		1800
Water		200
Total		2000

(iv) Other Contingent Expenses (per month) (Rs.)	
1. Rent	3000
2. Postage and stationery	300
3. Telephone/Telex/Fax charges	1200
4. Advt. and publicity	1000
5. Miscellaneous expenditure	2500
Total	8000

(v) Total Recurring Expenditure (per month)  
(i + ii + iii + iv) Rs. 54000

## C. Total Capital Investment

Fixed Capital	Rs. 174600
Working Capital on 3 Months Basis	Rs. 162000
Total	Rs. 336600

## FINANCIAL ANALYSIS

(1) Cost of Production (per annum) (Rs.)	
Total recurring expenditure	648000
Depreciation on machinery and equipment @ 10%	13150
Depreciation on tools, jigs and fixtures @ 25%	2500
Depreciation on office equipment, furniture @ 20%	2000
Interest on total capital investment @ 16%	53856
Total	719506
or Say	719500

### (2) Turnover (per annum)

The average job work expected per annum as under:

Item	Qty. (Nos)	Rate/ Unit (Rs.)	Total (Rs.)
Servicing/Repair of Colour TV, Black and white TV	500	600	3,00,000
Servicing/Repair of TV/CD/VCR/Audio Systems	600	500	3,00,000
Servicing/Repair of Emergency Lamp/ Invertors/Power supply systems	360	200	72,000
Servicing/Repair of Telephone Instruments,	1200	120	1,44,000

Item	Qty. (Nos)	Rate/ Unit (Rs.)	Total (Rs.)
Cordless phone, Electronic toys/ Games, Mobiles Phone			
Servicing/Repair of other Misc. equipments	720	100	72,000
	Total		8,88,000

(3) Profit (per annum) (Before Taxes) Rs. 1,68,500

(4) Net Profit Ratio

$$= \frac{\text{Profit (per annum)} \times 100}{\text{Sales (per annum)}}$$

$$= \frac{1,68,500 \times 100}{8,88,000}$$

$$= 18.97\%$$

(5) Rate of Return

$$= \frac{\text{Profit (per annum)} \times 100}{\text{Total capital investment}}$$

$$= \frac{1,68,500 \times 100}{3,36,600}$$

$$= 50.06\%$$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
Rent	36000
Depreciation on machinery and equipment @ 10%	13150
Depreciation on tools, jigs and fixtures @ 25%	2500
Depreciation on office equipment, furniture @ 20%	2000
Interest on total capital investment @ 16%	53856
40% of Salaries and wages	91200
40% of other contingent expenses and utilities (excluding rent)	33600
Total Fixed Cost	232306
or Say	232000

B. E. P.

$$= \frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{Profit}}$$

$$= \frac{232000 \times 100}{232000 + 1,68,500}$$

$$= 57.93\%$$

### Additional Information

- The Project Profile may be modified/tailored to suit the individual entrepreneurship qualities/capacity, production programme and also to suit the locational characteristics, wherever applicable.
- The Electronics Technology is undergoing rapid strides of change and there is need for regular monitoring of the national and international technology scenario. The unit may, therefore, keep abreast with the new technologies in order to keep them in pace with the developments for global competition.
- Quality today is not only confined to the product or service alone. It also extends to the process and environment in which they are generated. The ISO 9000 defines standards for Quality Management Systems and ISO 14001 defines standards for Environmental Management System for acceptability at international level. The unit may therefore adopt these standards for global competition.
- The margin money recommended is 25% of the working capital requirement at an average. However, the percentage of margin money may vary as per bank's discretion.

### Addresses of Machinery, Equipment and Raw Material Suppliers

- M/s. Kamal Electronics  
14, Lakshmi Building,  
J. C. Road,  
Bangalore-560002.

- Tel: 2238625, 220769  
Fax: 2242818  
E-mail: kamal electronics@vsnl.net.  
*(For Testing Equipment)*
2. M/s. Aplab Limited  
XL 1/583, II Floor,  
"Krishna Nivas",  
Adv. Eashwara Iyer Road,  
Kochi-682035.  
Telephone/Fax: 361623.  
Email: aplab kochi@vsnl.net.  
*(For Testing Equipment)*
  3. M/s. Signet Electronics P. Ltd.  
213, Champaklal Industrial Estate,  
105-Sion (E),  
Mumbai-400022.  
E-mail: SignetElectronic@Hotmail.com.  
*(For Testing Equipment)*
  4. M/s. K.P. Electronics  
B-23/204, Anand Nagar,  
C.S. Road, Dahisar (E),  
Mumbai-400068.  
*(For Testing Equipment)*
  5. M/s. RX Electronic Centre  
39/3958-B, Padmalayam Building,  
M.G. Road, Pallimukku,  
Kochi-682016.  
E-mail: rx@rx.electronics.com.  
Fax and Phone: 382494.  
*(For Components and other items)*
  6. M/s. Jain Electronic Centre  
Emgee Square,  
Padma Junction,  
M.G. Road, Ernakulam,  
Kochi-682035.  
*(For Components and other items)*
  7. M/s. Component and Devices  
Manikkirl Cross Road,  
Kochi-682016.  
Phone: 353150, 382250.  
Fax: 373150  
E-mail: Component@md3.vsnl.net.in  
*(For Components and other items)*