**Profile No.: 35 NIC Code: 33122**

**DIESEL ENGINE – PUMP REPAIRING**

**1. INTRODUCTION:**

Diesel engines, generator, Electric motors and pump-sets etc. equipment are the nucleus of modern rural and urban centers. The demand for repairing and servicing of these items are steadily growing, and therefore there is a bright scope in this field.

**2. PRODUCT & ITS APPLICATION:**

Diesel engines and coupled generators and motor are essential for all sectors due to power and water needs in urban and rural area population, agriculture activities and industries.

Engines and pumps motors etc. used regularly by users, like all machines, need repair and servicing due to normal wear and tear in operation. There are also several faults that occur due to damage to worn components, overloading, corrosion, overheating, etc.

This equipment require experienced repair shops that can repair, rebuild and replace components as also carry out normal servicing of these equipment by cleaning and preventive maintenance for smooth operations.

**3. DESIRED QUALIFICATIONS FOR PROMOTER:**

An ITI / Diploma / Graduate with relevant experience

**4. MARKET POTENTIAL AND MARKETING ISSUES. IF ANY:**

With growing population and also due to industrialization of our country there is wide use of standby power generating diesel engine generators, while pumps are widely used for water supply in commercial, residential and other buildings in rural as well as urban areas.

Electric motor/pump also has an extensive use in regular supply of water in almost every household and as well as industrial units, institutions, hotels and markets.

All these equipment need local repair and servicing and therefore, it can be taken up by experienced person in various rural, semi urban and urban centers.

**5. RAW MATERIAL REQUIREMENTS:**

Mostly equipment specific spare components are needed as per repair job requirement. The service unit may also need welding etc. consumables for the purpose.

**6. MANUFACTURING PROCESS:**

The repairing and servicing process is equipment specific. It involves steps like dismantling machines, inspection of components for wear tear and damage. The worn or damaged parts may be replaced with new or cleaned, repaired, or rebuilt as per the need and then assembled. The repaired equipment is then inspected for proper functioning and performance.

**7. MANPOWER REQUIREMENT:**

The unit shall require highly skilled service persons. The unit can start from 8 employees initially and increase to 23 or more depending on business volume.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr No** | **Type of Employees** |  **Monthly Salary** |  **No of Employees** |
|  |  |  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** |
| 1 | Skilled Operators | 16000 | 1 | 1 | 2 | 2 | 3 |
| 2 | Semi-Skilled/ Helpers | 7000 | 2 | 2 | 2 | 2 | 3 |
| 3 | Supervisor/ Manager | 25000 | 0 | 0 | 0 | 1 | 1 |
| 4 | Accounts/ Marketing | 16000 | 0 | 0 | 0 | 1 | 1 |
| 5 | Other Staff | 7000 | 0 | 0 | 0 | 1 | 1 |
|  | TOTAL |  | 3 | 3 | 4 | 7 | 9 |

**8. IMPLEMENTATION SCHEDULE:**

The unit can be implemented within 3 months from the serious initiation of project work.

|  |  |  |
| --- | --- | --- |
| **Sr No** | **Activities** | **Time Required in Months** |
| 1 | Acquisition of Premises | - |
| 2 | Construction (if Applicable) | - |
| 3 | Procurement and Installation of Plant and Machinery | 2 |
| 4 | Arrangement of Finance | 2 |
| 5 | Manpower Recruitment and start up | 1 |
|  | Total Time Required (Some Activities run concurrently) | 3 |

**9. COST OF PROJECT:**

The unit will require total project cost of Rs 6.42 lakhs as shown below:

|  |  |  |
| --- | --- | --- |
| **Sr No** | **Particulars** | **In Lakhs** |
| 1 | Land | 0.00 |
| 2 | Building | 0.00 |
| 3 | Plant and Machinery | 4.33 |
| 4 | Fixtures and Electrical Installation | 0.56 |
| 5 | Other Assets/ Preliminary and Preoperative Expenses | 0.30 |
| 6 | Margin for working Capital | 1.23 |
|  | TOTAL PROJECT COST | 6.42 |

**10. MEANS OF FINANCE:**

The project will require promoter to invest about Rs 2.53 lakhs and seek bank loans of Rs 3.89 lakhs based on 70% loan on fixed assets.

|  |  |  |
| --- | --- | --- |
| **Sr No** | **Particulars** | **In Lakhs** |
| 1 | Promoters Contribution | 2.53 |
| 2 | Loan Finance | 3.89 |
|  | TOTAL: | 6.42 |

**11. WORKING CAPITAL REQUIREMENTS:**

Working capital requirements are calculated as below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr No** | **Particulars** | **Gross Amount** |  **Margin %** | **Margin Amount** | **Bank Finance** |
| 1 | Inventories | 0.23 | 40 | 0.09 | 0.14 |
| 2 | Receivables | 0.38 | 50 | 0.19 | 0.19 |
| 3 | Overheads  | 0.90 | 100 | 0.90 | 0.00 |
| 4 | Creditors | 0.12 | 40 | 0.05 | 0.07 |
|  | TOTAL | 1.62 |  | 1.23 | 0.40 |

**12. LIST OF MACHINERY REQUIRED:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr No** | **Particulars** | **UOM** | **Quantity** | **Rate** | **Total Value** |
|  | Main Machines/ Equipment |  |  |  |  |
| 1 | Electrical Test meters | Nos | 1 | 60000 | 60000 |
| 2 | Tool Boxes, Torque Wrenches etc. | Nos | 1 | 80000 | 80000 |
| 3 | Lathe | Nos | 1 | 70000 | 70000 |
| 4 | Drill machine | Nos | 1 | 30000 | 30000 |
| 5 | Motor/alternator Rewinding tools | Nos | 1 | 20000 | 20000 |
| 6 | Bench Grinder and Misc. tools | Nos | 1 | 70000 | 70000 |
| 7 | Welding Sets | Nos | 1 | 30000 | 30000 |
| 8 | Hand Tools for Bolting/ Drilling/ Threading/ slotting  | Nos | 1 | 50000 | 50000 |
| 9 | Electrical Meters viz Megger etc. | Nos | 1 | 10000 | 10000 |
|  | subtotal: |  |  |  | 420000 |
|  | Tools and Ancillaries |  |  |  |  |
| **Sr No** | **Particulars** | **UOM** | **Quantity** | **Rate** | **Total Value** |
| 1 | Misc. equipment Jack etc. | LS | 1 | 3000 | 3000 |
| 2 | Tools and gauges | LS | 1 | 10000 | 10000 |
|  | subtotal: |  |  |  | 13000 |
|  | Fixtures and Elect Installation |  |  |  |  |
|  | Storage and transport bins and trolleys  | LS | 1 | 3000 | 3000 |
|  | Office Furniture | LS | 1 | 3000 | 3000 |
|  | Telephones/ Computer | LS | 1 | 20000 | 20000 |
|  | Electrical Installation | LS | 1 | 30000 | 30000 |
|  | subtotal: |  |  |  | 56000 |
|  | Other Assets/ Preliminary and Preoperative Expenses | LS | 1 | 30000 | 30000 |
|  | TOTAL PLANT MACHINERY COST |  |  |  | 519000 |

**13. PROFITABILITY CALCULATIONS:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr No** | **Particulars** | **UOM** | **Year Wise estimates** |
|  |  |  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** |
| 1 | Capacity Utilization | % | 40 | 50 | 60 | 70 | 70 |
| 2 | Sales | Rs Lakhs | 9.00 | 11.25 | 13.50 | 15.75 | 15.75 |
| 3 | Raw Materials & Other Direct Inputs | Rs Lakhs | 2.77 | 3.46 | 4.15 | 4.84 | 4.84 |
| 4 | Gross Margin | Rs Lakhs | 6.23 | 7.79 | 9.35 | 10.91 | 10.91 |
| 5 | Overheads Except Interest | Rs Lakhs | 4.88 | 4.88 | 4.88 | 4.88 | 4.88 |
| 6 | Interest | Rs Lakhs | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| 7 | Depreciation | Rs Lakhs | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |
| 8 | Net Profit Before Tax | Rs Lakhs | 0.29 | 1.85 | 3.41 | 4.97 | 4.97 |

**14. BREAK EVEN ANALYSIS**

The project is can reach breakeven capacity at 42.02 % of the installed capacity as depicted here below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr No** | **Particulars** | **UOM** | **Value** |
| 1 | Sales at Full Capacity | Rs Lakhs | 22.50 |
| 2 | Variable Costs | Rs Lakhs | 6.92 |
| 3 | Fixed Cost incl. Interest | Rs Lakhs | 5.94 |
| 4 | Break Even Capacity | % of Inst Capacity | 38.13 |