Computerised Wheel Balancing and Wheel Alignment Workshop

PRODUCT CODE	:	N.A.
QUALITY AND STANDARDS	:	Company's own specifications
PRODUCTION CAPACITY	:	Qty. : (i) Wheel Alignment-1800 Vehicles (per annum) (ii) Wheel Balancing - 9000 Wheels Value : Rs. 6.21 Lakhs
MONTH AND YEAR OF PREPARATION	:	April, 2003
PREPARED BY	:	Small Industries Service Institute 22, Godown, Indl. Estate, Jaipur - 302006 (Raj) Phone Nos. 2212098, 2213099 Fax: 0141 - 2210553 E-mail:sisijpr@sancharnet.in

Introduction

It is very essential that all the Wheels of a Vehicle are completely balanced otherwise there will be bubbling of wheel and this will affect the stearing control. Similarly, if the wheel alignment of a vehicle is out of order, the rubbing of tyres will be more and free movement of wheels also get affected. This results into rapid wear of tyre treads. To overcome these problems, computerised Wheel Balancing and Wheel Alignment machines are used. These machines are fully automatic, very accurate, quick and precise in their work.

Market Potential

There is a very good market potential for the computerized wheel balancing and wheel alignment workshop. Now a days, these workshops are very common in urban areas, and suitable for all passenger cars, light trucks and motorcycles (with special flange in case of wheel balancing). With the decline in passenger car prices and availability of easy finance for passenger and commercial vehicles, the demand for such computerized workshops is rapidly increasing coinciding with increase in number of vehicles.

Basis and Presumptions

1. The Project is based on single shift working of 8 hours a day and 75% efficiency.
2. The rental value of the workshop has been taken at prevailing rates.

3. The cost of machinery and equipment indicated in the Profile refers to a particular make and prices are approximate to those prevailing at the time of preparation of the Project Profile.
4. The provision made in respect of consumables, personnel, and overhead etc., has been made at the prevailing rates and are approximate only.
5. The rate of interest has been made @ 16% per annum.
6. The labour charges are based upon those prevailing in local market.

IMPLEMENTATION SCHEDULE

The main activities in the implementation of the project have been listed and the average time for implementation of the project is estimated at 4 - 4½ months as many activities can be taken up simultaneously.

Sl.No.	*Activity*	*Period*
1.	Preparation of project report	1 month
2.	Registration and other formalities	½ month
3.	Sanction of loan	2 months
4.	Purchase of machinery and equipments, etc.	1 month
5.	Installation and Electrification	2 weeks
6.	Recruitment of Personnel	2 weeks

TECHNICAL ASPECTS

Process of Manufacture

It is very essential that all the wheels of a vehicle completely balanced and aligned with each other as far as possible. If these are not properly balanced, the dynamic forces are set in motion. These forces increase the load on bearings, stress on various members of vehicle, unpleasant and dangerous vibrations in members of vehicle. Besides, when the wheels of a vehicle are not properly aligned, the free movement of wheels gets obstructed and tyres start bubbling, which results into lesser life for tyres. These machines display fault on screen automatically and are equipped with automatic self check, users friendly calibration and protection in wheel clamping.

Working Process

(i) For Wheel Balancing: The machine is fully automatic. The wheel is to be loaded on turn table for balancing and sensor holders are attached to it. All front and rear wheel values for the measured value printout are calculated in a single wheel alignment run. Cordless remote control is provided with machine to enable the operator to operate the machine from the steering wheel. In these machines, normally there is a castor like adjustment and simultaneous display of castor, camber and toe readings on computer screen. The alignment datas are displayed in figures and also in graphic form on screen.

(ii) For Wheel Alignment: The measuring process in these machines is normally automatic. After the wheel data is entered by potential meters and the machine started, the measuring run is made automatically until the wheel comes to a stand-still at the point to be balanced. The degree of precision for measurements is determined fine, medium or average. The data of rim width, rim diameter, distance can be stored in the machine along with the method of compensation (weight). The computer automatically runs the

standard programme for the two side balancing using hammer on weights. Special programmes for other type of balancing is also possible in the machine. The size of the weight required and the attachment point are calculated exactly and stored by the computer.

Production Capacity (per annum)

Wheel balancing	1800 Vehicles
Wheel Alignment	9000 Wheel
Other Misc. Repairs of Vehicles	L.S.

Motive Power 2.0 KW.

Pollution Control

No Pollution Control device is required as this Activity is non–polluting.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building	(Rs.)
A built up area of 200 sq. mtrs. on rental basis as: 1) For office, store, etc. 50 Sq. mtrs. 2) For Workshed, Pit and open space for vehicles parking etc. 150 sq. mtrs.(per month)	3,600

(ii) Machinery and Equipments

Sl. No.	Item	Qty.	Amount (In Rs.)
1.	Computerised wheel balancing machine for all type of wheels upto 65 kg. Weight and maximum 850 mm of external wheel diameter with all standard accesssories	1 No.	1,10,000
2.	Computerized PC based wheel Aligner with option of CCD Sensors (Equipped with 14" colour monitor, key board, 3.5" floppy disk drive, 4 Sensors, printer, and other standard accessories	1 No.s	3,00,000
3.	Tool Kit	2 sets	8,000
4.	Vehicle Lifting Jacks	2 Nos.	4,000
5.	Furniture and Misc. office equipment	L.S.	8,000
6.	Installation and Electrification	L.S.	25,000
7.	Construction of 5 ½ feet deep Pit for vehicle Inspection and precision wheel alignment jobs	1 No.	5,000
	Total		4,60,000

(iii) Pre-operative Expenses 10,000

B. Working Capital (per month)

(i) Staff and Labour

Designation	No.	Salary (Rs.)	Amount (In Rs.)
1. Supervisor	1	2,500	2,500
2. Skilled Worker	1	2,000	2,000
3. Semi-Skilled Worker	1	1,500	1,500
Total			6,000
Add perquisites @ 15%			900
Total			6,900

(ii) Utilities (per month)	(Rs.)
Power and Water	1,200

(iii) Other Contingent Expenses	(Rs.)
(1) Rent	3,600
(2) Stationery, Postage and Telephone	700
(3) Advertisement, Publicity and Insurance	500
(4) Consumable Store (Dead weight, Bolts, Maintenance, etc.)	2,000
Total	6,800

(iv) Working Capital (i + ii+ iii) Rs. 14,900

(v) Working Capital *(for 3 months)* Rs. 44,700
Rs. 14900 × 3

C. Total Capital Investment

(1) Fixed Capital	Rs. 4,70,000
(2) Working Capital (for 3 months)	Rs. 44,700
Total	Rs. 5,14,700

FINANCIAL ANALYSIS

(1) Cost of Production (per year)	(In Rs.)
(a) Total recurring cost	1,78,800
(b) Depreciation on Computerized Machinery and Equipment @ 25%	1,09,750
(c) Depreciation on Furniture, Tools, and Pit @ 20%	4,200
(d) Interest on total capital investment @ 16%	82,350
Total	3,75,100
Say	3,75,000

(2) Turn-over (per year)

Sl. No.	Item	Quantity	Rate (Rs.)	Amount (In Rs.)
1.	Wheel Alignment	6 Vehicles/ day × 300 Working days per year (1800 vehicles)	Alignment rate of 200/ vehicle	3,60,000
2.	Wheel Balancing	6 vehicles per day (Considering 5 wheels per vehicle) × 300 days per year (9000 Wheels)	25/wheel	2,25,000
3.	Charges for other Misc. Vehicle Repairs	-	L.S.	36,000
		Total		6,21,000

(3) Net Profit (per year)

= Turnover – Cost of Services

= Rs. 6,21,000 – 3,75,000

= Rs. 2,46,000

(4) Net Profit Ratio on Turnover

$$= \frac{\text{Net Profit} \times 100}{\text{Total turnover}}$$

$$= \frac{2,46,000 \times 100}{6,21,000}$$

= 39.6%

(5) Profit on Investment

$$= \frac{\text{Profit} \times 100}{\text{Total Investment}}$$

$$= \frac{2,46,000 \times 100}{5,14,700}$$

= 48%

(6) Break-even Point

Fixed Cost (per annum)	(In Rs.)
Depreciation	1,13,950
Interest	82,350
Rent	43,200
40% of Salary and Wages	33,120
40% of Other Contingent Expenses	15,360
Total	2,87,980

$$\text{B.E.P.} = \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost + Profit}}$$

$$= \frac{2,87,980 \times 100}{2,87,980+2,46,000}$$

= 54%

Addresses of Machinery and Equipment Suppliers

1. M/s. Avery India Ltd.
   105, Miler Ganj, G. T. Road,
   Ludhiana - 141003
   Ph.: 0161 - 531321.

2. M/s. Countech Engineers
   A-1/2, Guru Nanak Street,
   Moujpur,
   Delhi - 110053.
   Ph.: 011 - 2264403.

3. M/s. Rinki Engineering Works
   WZ - 88, Ramgarh Colony,
   Opp. Kirti Nagar,
   New Delhi - 110013
   Ph.: 011-25410970

4. M/s. Nepture Equipment Pvt. Ltd.
   2, Zoroastrian Building,
   16, Hornimiman Circle,
   Fort, Mumbai.
   Telex - 022-266 4098.
   E-mail: nepturl@usnl.com.