

# **Computerised Wheel Balancing and Wheel Alignment Tyre Changing Workshop**

Quality and Standards : Company's own specifications

Production Capacity : Qty. : (i) Wheel Alignment -36000 Vehicles (Per annum)  
(ii) Wheel Balancing -9000 Vehicles (Per annum)

Value: Rs. 21.6 Lakhs

## **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 steering 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 gets affected. This result 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 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 cost of Land & 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 @12.5% per annum
6. The labor 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.

<b>Sl.No.</b>	<b>Activity</b>	<b>Period</b>
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 data's 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 program for the two side balancing using hammer on weights. Special programmes for other type of balancing are 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	3600 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

<b>(i) Land and Building</b>	<b>Amount (In Rs.)</b>
i. Land 200 sq. mtr. @ Rs. 6000 per sq. mtr including registration	1200000
ii. Cost of land development, fencing, approach road, inside roads, land scaping, drainage etc. @ Rs. 1000 per sq. mtr.	200000
iii. Total built-up area 150 sq. mtrs.@ Rs 5000/- sq Mtr	750000
iv. Water System (including Bore Well + over head tank etc)	100000
<b>Total civil cost= cost of land + building</b>	<b>2250000</b>

### (ii) Machinery and Equipment

<b>Sl. No.</b>	<b>Item</b>	<b>Qty.</b>	<b>Amount (In Rs.)</b>
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 accessories	1 No.	150000
2.	Computerised 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	350000
3.	Tool Kit	2 Set	15000
4.	Vehicle Lifting Jacks	2 Nos.	6000
5.	Furniture and Misc. office equipment	L.S.	20000
6.	Installation and Electrification	L.S.	50000
7.	Construction of 5 ½ feet deep Pit for vehicle Inspection and precision wheel alignment jobs	1 No.	20000
<b>Total</b>			<b>611000</b>

(iii) Pre-operative Expenses in 25000

**Total Fixed capital ( i+ii+iii ) in Rs.                      2886000**

## **B. Working Capital (Per Month)**

(i) Staff and Labour

Sl.No.	Designation	No.	Salary (Rs.)	Amount (In Rs.)
1	Supervisor	1	8000	8000
2	Skilled Worker	2	5000	10000
3	Semi-Skilled Worker	2	3000	6000
<b>Total</b>				<b>24000</b>
Add perquisites @ 22%				5280
<b>Total</b>				<b>29280</b>

<b>(ii) Utilities (per month)</b>	<b>(Rs.)</b>
Power	3000
<b>(iii) Other Contingent Expenses</b>	<b>(Rs.)</b>
(1) Stationery, Postage and Telephone	2000
(2) Advertisement, Publicity and Insurance	10000
(3) Consumable Store (Dead weight, Bolts, Maintenance, etc.)	10000
<b>Total</b>	<b>22000</b>
(iv) Working Capital (i + ii+ iii)	54280
(v) Working Capital (for 2 months) Rs. 54280× 2	108560

## **C. Total Capital Investment**

(1) Fixed Capital	2886000
(2) Working Capital (for 2 months)	108560
<b>Total</b>	<b>2994560</b>

# Financial Analysis

<b>(1) Cost of Production (per year)</b>	<b>(In Rs.)</b>
(a) Total recurring cost	651360
(b) Depreciation on Computerized Machinery and Equipment @ 25%	125000
(c) Depreciation on Building @ 5 %	112500
(d) Depreciation on Furniture, Tools, and Pit @ 20%	18200
(e) Interest on total capital investment @ 12%	359347
<b>Total</b>	<b>1266407</b>

## (2) Turn-over (per year)

Sl. No.	Item	Quantity	Rate (Rs.)	Amount. (In Rs.)
1.	Wheel Alignment	12 Vehicles/ day × 300 Working days per year (1800 vehicles)	Alignment rate of 250/ vehicle	900000
2.	Wheel Balancing	6 vehicles per day (Considering 5 wheels per vehicle) × 300 days per year (9000 wheels)	60/wheel	540000
3.	Charges for other Misc. Vehicle Repairs	-	L.S.	720000
<b>Total</b>				<b>2160000</b>

## (3) Net Profit (per year)

$$\begin{aligned} & \text{Turnover} - \text{Cost of Services} \\ &= 2160000 - 1266407 \\ &= 893593 \end{aligned}$$

## (4) Net Profit Ratio on Turnover

$$\begin{aligned} &= \frac{\text{Net Profit}}{\text{Total turnover}} \times 100 \\ &= \frac{893593}{2160000} \times 100 \\ &= 41.37 \end{aligned}$$

$$\begin{aligned}
 \text{(5) Profit on Investment} &= \frac{\text{Profit}}{\text{Total Investment}} \times 100 \\
 &= \frac{893593}{2994560} \times 100 \\
 &= 29.84
 \end{aligned}$$

**(6) Break-even Point**

<b>Fixed Cost (per annum)</b>	<b>(In Rs.)</b>
Depreciation	125000
Interest	359347
40% of Salary and Wages	140544
40% of Other Contingent Expenses	105600
<b>Total</b>	<b>730491</b>

$$\begin{aligned}
 \text{B.E.P} &= \frac{\text{Fixed Cost}}{\text{Fixed Cost} + \text{Profit}} \times 100 \\
 &= \frac{730491}{730491 + 893593} \times 100 \\
 &= 44.98
 \end{aligned}$$