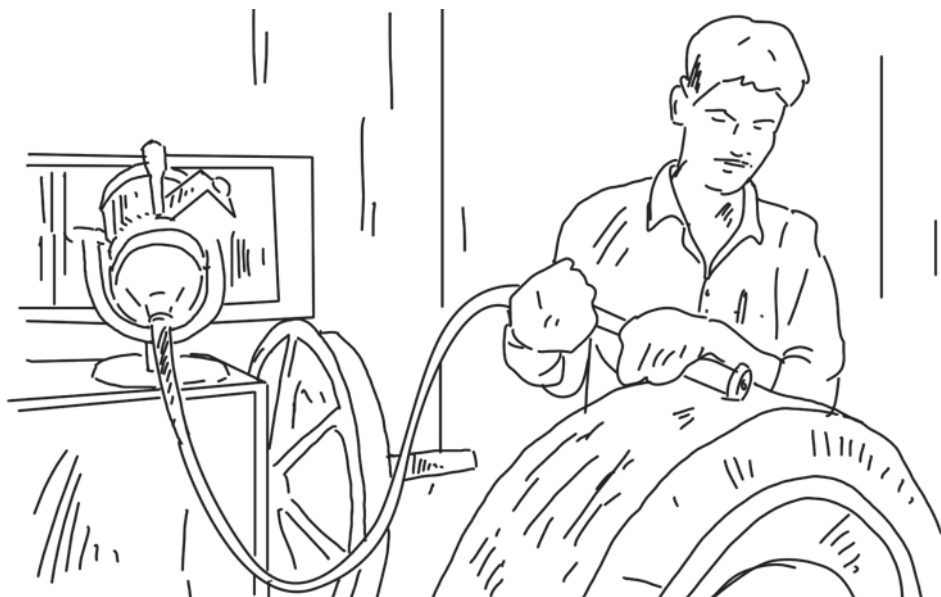


# TYRE RETREADING



## 1.0 INTRODUCTION

Retreading of automobile tyres is a process of replacement of worn, cut, loose treads by new ones. By retreading, the old worn out tyres can be put to service again almost like new tyres and will perform quite satisfactorily for a reasonable period of time. The retreading of tyres is relatively cheap process, which does not require any specially difficult techniques. All the machinery and equipments required for this process can be easily procured from indigenous sources.

This project profile is for setting up of Tyre Retreading Unit based on 300 working days per annum and 8 working hours per day. The installed capacity of the unit per annum is as follows;

Passenger Car Tyres	-	2400 Nos.
Bus/Truck Tyres	-	1800 Nos.

## 2.0 MARKET POTENTIAL

The importance of tyre retreading industry is increasing day by day due to the escalating cost of the new tyres and shortage and scarce availability of some types of tyres. The tremendous increase in the automobile vehicle

population in recent times has resulted in great demand for retreading services. Hence there is a good scope for setting up more number of retreading units in the Small Scale Sector.

## 3.0 PROCESS DETAILS:

**I. INSPECTION OF TYRES** : Tyres are carefully examined through ply separation, fabric injury, broken bead wires, weather cracking etc.

**II. BUFFING** : The Buffing equipments play an important role in the success of retreading. The Buffing equipment used for pre-curing offers facility to build the tyre under inflated condition with out a tube.

**III. COATING** : The buffed tyre is coated with a layer of adhesive cement and mounted on the tread builder. Where again the facility to inflate the tyre is available. A layer of bonding is applied around the tyre.

**IV. VULCANISATION** : The tyre with the tread built around it now carried by a full skirt butyle envelop and placed in the electric chamber. The roll of the electric chamber only to vulcanize the bonding gum by circulating hot air around the tyre.

#### 4.0. COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
Land & site development	Own Land/On Lease
Building & civil works	6.60
Plant & Machinery	10.45
Misc. Fixed assets	1.16
Preliminary & pre-operative expenses	1.71
Contingencies & escalation @ 3%	0.55
Working capital	1.39
<b>TOTAL</b>	<b>21.85</b>

**4.1 Land & Site Development:** Nil. Total Land: 4,000 Sq. Ft. ; Covered Area: 2,000 Sq. Ft.

**4.2 Building & Civil Works:** Details of building & civil works are given below.

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Work Shed, Store cum Office	2000	275	550000
<b>Sub total</b>			<b>550000</b>
Add: Electrification, water supply and sanitation @20%			110000
<b>TOTAL</b>			<b>660000</b>
<b>Say (Rs. in lacs)</b>			<b>6.60</b>

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Buffing Machine	1	850000
Boiler Cap	1	
Air Compressor with 5 HP Motor	1	
Miscellaneous Equipment	LS	100000
<b>Sub total</b>		<b>950000</b>
Add: Installation, transportation, etc @ 10%		95000
<b>TOTAL</b>		<b>1045000</b>
<b>Say (Rs. in lacs)</b>		<b>10.45</b>

**4.4 Misc. Fixed assets:** Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Electric Transformer	1	200000	200000
Fixtures and Fittings	1	40000	40000
Furniture's	LS	—	15000
Miscellaneous items	LS	—	50000
<b>Sub total</b>			<b>105000</b>
Add: Installation, transportation, etc @ 10%			10500
<b>TOTAL</b>			<b>115500</b>
<b>Say (Rs. in lacs)</b>			<b>1.16</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

(Rs. In lacs)

Particulars	Amount (Rs)
Travelling expenses	10000
Professional & other fees	40000
Interest during implementation	70510
Miscellaneous expenses	50000
<b>TOTAL</b>	<b>170510</b>
<b>Say (Rs. in lacs)</b>	<b>1.71</b>

**4.7 Working capital:** Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	30	1.11	1.30	1.48
Power & Utility	30	0.10	0.11	0.13
Salary	30	0.43	0.44	0.44
Finished Goods	15	0.84	0.95	1.05
Receivables	15	0.99	1.16	1.32
<b>Total</b>		<b>3.48</b>	<b>3.95</b>	<b>4.42</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>1.39</b>			

**5.0 MEANS OF FINANCE**

The means of finance for the project is estimated as below.

(Rs. in lacs)

Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
<b>A. Equity from Promoters</b>	<b>40%</b>	<b>8.74</b>
<b>B. Subsidy from Central/State Govt.</b>	<b>-</b>	
<b><u>DEBT</u></b>		
<b>Term Loan from Banks/Financial Institutions</b>	<b>60%</b>	<b>13.11</b>
<b>TOTAL</b>	<b>100%</b>	<b>21.85</b>

**6.0 PROFITABILITY STATEMENT**

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
<b>Production capacity (Nos./annum)</b>	4200	4200	4200	4200	4200
Capacity utilisation	60%	70%	80%	80%	80%
<b>Production/annum at capacity utilisation</b>	<b>2520</b>	<b>2940</b>	<b>3360</b>	<b>3360</b>	<b>3360</b>
<b>Total income/annum</b>	<b>24.12</b>	<b>28.14</b>	<b>32.16</b>	<b>32.16</b>	<b>32.16</b>
<b><u>B. OPERATING EXPENSES</u></b>					
Raw materials	13.51	15.77	18.02	18.02	18.02
Power & fuel	1.18	1.38	1.58	1.58	1.58
Salary	5.28	5.31	5.33	5.36	5.39
Repair & Maintenance	0.29	0.30	0.30	0.31	0.32
Other Expenses	0.24	0.28	0.32	0.32	0.32
<b>Total Operating Expenses</b>	<b>20.51</b>	<b>23.03</b>	<b>25.56</b>	<b>25.59</b>	<b>25.62</b>
<b>Operating profit</b>	<b>3.61</b>	<b>5.11</b>	<b>6.60</b>	<b>6.57</b>	<b>6.54</b>

**C. FINANCIAL EXPENSES**

Depreciation	0.85	0.85	0.85	0.85	0.85
Interest on Term Loan	1.05	0.97	0.79	0.62	0.44
Interest on Working Capital Loan	0.17	0.19	0.21	0.21	0.21
<b>Net Profit</b>	<b>1.55</b>	<b>3.10</b>	<b>4.75</b>	<b>4.89</b>	<b>5.03</b>
Net cash accruals	<b>2.39</b>	<b>3.95</b>	<b>5.60</b>	<b>5.74</b>	<b>5.88</b>
Principal Repayment	0.00	2.18	2.18	2.18	2.18

**6.1 Production capacity and Sales Realisation:** Total Tyre Retreading at 100% capacity utilization is estimated as below.

Passenger Car Tyres	2400 Nos.
Bus/Truck Tyres	1800 Nos.
<b>Total production per annum at 100% capacity (Nos)</b>	<b>4200 Nos.</b>

Particulars	Qty	Average Price per Unit (Rs.)	Amount (Rs.)
Passenger Car Tyres	2400 Nos.	550	1320000
Bus/Truck Tyres	1800 Nos.	1500	2700000
<b>Total Annual Sales at 100% capacity (Rs)</b>			<b>4020000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Price per Unit(Rs.)	Amount (Rs.)
Precured Thread Rubber	18000 kg	100	1800000
Cushion Compound	2400 Ltrs	100	240000
Vulcanising Solution Envelop	1800 Nos.	90	162000
Envelop	4800 Nos.	10	48000
Curing Bag (In Nos.)	3000 Nos.	8	2400
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>2252400</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total HP of 25)	—	18.65	18.65
General Lighting	20	0.10	2.00
Total power requirement/ day (Kw)			20.65
No. of hrs/day	8		
Nos. of days/annum	300		
Annual power requirement (kwh)	49560		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	173460		
<b>Estimate of Utility</b>			
Expenses on other utility (Rs)	24000		
<b>Expenses on power &amp; Utility at 100% capacity (Rs)</b>	<b>197460</b>		

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employees	Numbers	Salary/ Month (Rs)	Cost/annum (Rs)
Production Manager	1	10000	120000
Accounts cum Store keeper	1	6000	72000
Skilled workers	2	5000	120000
Semi-skilled workers	3	4000	144000
Unskilled workers	2	3000	72000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>528000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)

Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	6.60	1.00%	0.07
Plant & Machinery	10.45	2.00%	0.21
Misc. Fixed assets	1.16	1.50%	0.02
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.29</b>

**6.6 Other Expenses:** Other expenses have been assumed at 1% of sales realisation.

**6.7 Depreciation:** Depreciation has been calculated by straight line method. The details of calculation are given below.

(Rs in lacs)

Description	Cost (Rs)	Rate	Amount/annum (Rs)
Building & civil works	6.60	3.34%	0.22
Plant & Machinery	10.45	5.28%	0.55
Misc. Fixed assets	1.16	6.33%	0.07
<b>TOTAL</b>			<b>0.85</b>

**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 years including moratorium period of 1 year with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	13.11	13.11	10.92	8.74	6.55	4.37	2.18
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest (8%)	0.09	0.09	0.07	0.06	0.04	0.03	0.01
	<b>Closing balance</b>	<b>13.11</b>	<b>12.93</b>	<b>10.74</b>	<b>8.56</b>	<b>6.37</b>	<b>4.19</b>	<b>2.00</b>
Month 2	Opening balance	13.11	12.93	10.74	8.56	6.37	4.19	2.00
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.09	0.07	0.06	0.04	0.03	0.01
	<b>Closing balance</b>	<b>13.11</b>	<b>12.74</b>	<b>10.56</b>	<b>8.37</b>	<b>6.19</b>	<b>4.01</b>	<b>1.82</b>
Month 3	Opening balance	13.11	12.74	10.56	8.37	6.19	4.01	1.82
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.06	0.04	0.03	0.01

	<b>Closing balance</b>	<b>13.11</b>	<b>12.56</b>	<b>10.38</b>	<b>8.19</b>	<b>6.01</b>	<b>3.82</b>	<b>1.64</b>
Month 4	Opening balance	13.11	12.56	10.38	8.19	6.01	3.82	1.64
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.03	0.01
	<b>Closing balance</b>	<b>13.11</b>	<b>12.38</b>	<b>10.20</b>	<b>8.01</b>	<b>5.83</b>	<b>3.64</b>	<b>1.46</b>
Month 5	Opening balance	13.11	12.38	10.20	8.01	5.83	3.64	1.46
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.02	0.01
	<b>Closing balance</b>	<b>13.11</b>	<b>12.20</b>	<b>10.01</b>	<b>7.83</b>	<b>5.64</b>	<b>3.46</b>	<b>1.27</b>
Month 6	Opening balance	13.11	12.20	10.01	7.83	5.64	3.46	1.27
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.02	0.01
	<b>Closing balance</b>	<b>13.11</b>	<b>12.02</b>	<b>9.83</b>	<b>7.65</b>	<b>5.46</b>	<b>3.28</b>	<b>1.09</b>
Month 7	Opening balance	13.11	12.02	9.83	7.65	5.46	3.28	1.09
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.07	0.05	0.04	0.02	0.01
	<b>Closing balance</b>	<b>13.11</b>	<b>11.83</b>	<b>9.65</b>	<b>7.46</b>	<b>5.28</b>	<b>3.09</b>	<b>0.91</b>
Month 8	Opening balance	13.11	11.83	9.65	7.46	5.28	3.09	0.91
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.06	0.05	0.04	0.02	0.01
	<b>Closing balance</b>	<b>13.11</b>	<b>11.65</b>	<b>9.47</b>	<b>7.28</b>	<b>5.10</b>	<b>2.91</b>	<b>0.73</b>
Month 9	Opening balance	13.11	11.65	9.47	7.28	5.10	2.91	0.73
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.06	0.05	0.03	0.02	0.00
	<b>Closing balance</b>	<b>13.11</b>	<b>11.47</b>	<b>9.28</b>	<b>7.10</b>	<b>4.92</b>	<b>2.73</b>	<b>0.55</b>
Month 10	Opening balance	13.11	11.47	9.28	7.10	4.92	2.73	0.55
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.06	0.05	0.03	0.02	0.00
	<b>Closing balance</b>	<b>13.11</b>	<b>11.29</b>	<b>9.10</b>	<b>6.92</b>	<b>4.73</b>	<b>2.55</b>	<b>0.36</b>
Month 11	Opening balance	13.11	11.29	9.10	6.92	4.73	2.55	0.36
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.08	0.06	0.05	0.03	0.02	0.00
	<b>Closing balance</b>	<b>13.11</b>	<b>11.11</b>	<b>8.92</b>	<b>6.74</b>	<b>4.55</b>	<b>2.37</b>	<b>0.18</b>
Month 12	Opening balance	13.11	11.11	8.92	6.74	4.55	2.37	0.18
	Repayment	0.00	0.18	0.18	0.18	0.18	0.18	0.18
	Interest	0.09	0.07	0.06	0.04	0.03	0.02	0.00
	<b>Closing balance</b>	<b>13.11</b>	<b>10.92</b>	<b>8.74</b>	<b>6.55</b>	<b>4.37</b>	<b>2.18</b>	<b>0.00</b>
<b>Principal Repayment</b>		<b>0.00</b>	<b>2.18</b>	<b>2.18</b>	<b>2.18</b>	<b>2.18</b>	<b>2.18</b>	<b>2.18</b>
<b>Interest</b>		<b>1.05</b>	<b>0.97</b>	<b>0.79</b>	<b>0.62</b>	<b>0.44</b>	<b>0.27</b>	<b>0.09</b>

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	1.55	3.10	4.75	4.89	5.03
Depreciation	0.85	0.85	0.85	0.85	0.85
Interest	1.05	0.97	0.79	0.62	0.44
<b>Total</b>	<b>3.44</b>	<b>4.92</b>	<b>6.39</b>	<b>6.36</b>	<b>6.32</b>
Interest	1.05	0.97	0.79	0.62	0.44
Loan repayment	0.00	2.18	2.18	2.18	2.18
<b>Total</b>	<b>1.05</b>	<b>3.15</b>	<b>2.98</b>	<b>2.80</b>	<b>2.63</b>
<b>DSCR</b>	<b>3.28</b>	<b>1.56</b>	<b>2.15</b>	<b>2.27</b>	<b>2.41</b>

Average DSCR = 2.30

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>24.12</b>	<b>28.14</b>	<b>32.16</b>
<b>B. Variable cost</b>			
Raw materials	13.51	15.77	18.02
Power & utility	1.18	1.38	1.58
Other expenses	0.24	0.28	0.32
Interest on Working Capital Loan	0.17	0.19	0.21
<b>Total variable cost</b>	<b>15.11</b>	<b>17.62</b>	<b>20.13</b>
<b>C. Contribution (A-B)</b>	<b>9.01</b>	<b>10.52</b>	<b>12.03</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	5.28	5.31	5.33
Repair & maintenance	0.29	0.30	0.30
Interest on Term Loan	1.05	0.97	0.79
Depreciation	0.85	0.85	0.85
<b>Total fixed cost</b>	<b>7.47</b>	<b>7.42</b>	<b>7.28</b>
<b>E. BREAK EVEN POINT</b>	<b>82.84%</b>	<b>70.52%</b>	<b>60.50%</b>
<b>F. BEP at operating capacity</b>	<b>49.70%</b>	<b>49.36%</b>	<b>48.40%</b>
<b>G. Cash BEP</b>	<b>44.08%</b>	<b>43.74%</b>	<b>42.77%</b>

**9.0 INTERNAL RATE OF RETURN (IRR)**

(Rs. in lacs)

Year	0	1	2	3	4	5	6	7
Capital Expenditure	18.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.48	0.47	0.47	0.00	0.00	0.00	0.00
<b>Total (A)</b>	<b>18.75</b>	<b>3.48</b>	<b>0.47</b>	<b>0.47</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>								
Profit After Tax		1.55	3.10	4.75	4.89	5.03	5.18	5.32
Add: Depreciation		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Add: Interest		1.05	0.97	0.79	0.62	0.44	0.27	0.09
Add: Salvage Value								
<b>Total (B)</b>	<b>0.00</b>	<b>3.44</b>	<b>4.92</b>	<b>6.39</b>	<b>6.36</b>	<b>6.32</b>	<b>6.29</b>	<b>6.26</b>
<b>NET FLOW (B-A)</b>	<b>-18.75</b>	<b>-0.04</b>	<b>4.44</b>	<b>5.92</b>	<b>6.36</b>	<b>6.32</b>	<b>6.29</b>	<b>6.26</b>

IRR = 21%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s Jayalakshmi Engineering Works	D. No. 5/35-A, Suler Industrial Estate, Kadampadi Post, Suler Air Force Station, Coimbatore, Pin - 641 401, Tamil Nadu.
2.	M/s J. K. Engineering Works	No. 263, Sudama Industrial Estate, Near Dhawan Nursery, Ram Baugh, Upvan Pokhran, Road No. 1, Thane, Pin - 400606, Maharashtra.
3.	M/s H. M. G. High Tech Tyre Machinery & Consultancy	Street No. 2, Bachittar Nagar, Gill Road, Ludhiana, Pin - 141 003, Punjab.