

PROJECT PROFILE

ON

FUEL PUMP SERVICING

PART-I

NAME OF THE PRODUCT : **FUEL PUMP SERVICING**

QUALITY & STANDARD : As per Specification of Automobile Manufacturers.

PRODUCTION CAPACITY : The production capacity of the unit at 75% capacity utilization.

Item	Quantity(Nos.)	Value (Rs.)
FUEL PUMP SERVICING	2496	14,97,600

MONTH & YEAR OF PREPARATION : March, 2013.

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PART-II

A) INTRODUCTION

Automobile industry has a sufficient share in industrial world. Every Automobile engine (except petrol engine) whether of three wheelers or four wheelers is fitted with fuel pump. Apart from automobile engine, fuel pump also required in diesel engines used for various application i.e Gen sets etc. A **fuel pump** is a frequently essential component on a internal combustion engined device. Many engines (older motorcycle engines in particular) do not require any fuel pump at all, requiring only gravity to feed fuel from the fuel tank through a line or hose to the engine. But in non-gravity feed designs, fuel has to be pumped from the fuel tank to the engine and delivered under low pressure to the carburetor or under high pressure to the fuel injection system. Often, carbureted engines use low pressure mechanical pumps that are mounted outside the fuel tank, whereas fuel injected engines often use electric fuel pumps that are mounted inside the fuel tank (and some fuel injected engines have two fuel pumps: one low pressure/high volume supply pump in the tank and one high pressure/low volume pump on or near the engine).

A **fuel pump** mainly consist of fuel injector. A fuel injector is nothing but an electronically controlled valve. It is supplied with pressurized fuel by the fuel pump in your car, and it is capable of opening and closing many times per second. When the injector is energized, an electromagnet moves a plunger that opens the valve, allowing the pressurized fuel to squirt out through a tiny nozzle. The nozzle is designed to **atomize** the fuel -- to make as fine a mist as possible so that it can burn easily. The amount of fuel supplied to the engine is determined by the amount of time the fuel injector stays open. This is called the **pulse width**, and it is controlled by the ECU (Engine control Unit). The injectors are mounted in the intake manifold so that they spray fuel directly at the intake valves. A pipe called the **fuel rail** supplies pressurized fuel to all of the injectors. In order to provide the right amount of fuel, the engine control unit is equipped with a whole lot of sensors.

Servicing/Repairing of fuel pump is required for better fuel efficiency and smooth supply of fuel to engine, which normally deviates after running for few thousand

Kilometers/hours of running (Depending upon the load and type of use of engine) and needs proper repairing/servicing. Main Causes for which fuel pump require servicing are: 1) Use of improper or adulterated fuel 2) Inclusion of outside dust particle 3) Other miscellaneous reasons. After repairing a proper ratio of RPM corresponding to CC oil (cubic centimeter oil requirement) is maintained.

B) MARKET POTENTIAL

The demand of the servicing of fuel pump is closely linked with production of automobiles in the country.

India is second largest automobile market in the world.

Some of the important statistics for auto sector of this country are as follows:

1. Gross Turnover of the Automobile Manufacturers in India

(Rs. Crores)

Year	2006-07	2007-08	2008-09	2009-10	2010-11
Turnover	137142	146448	152950	203491.2	269481.8

2. Installed capacity:

(Lakh Nos.)

Four Wheelers	31.7
Two & Three Wheelers	121.5

3. Domestic Market Share for 2011-12:

(%)

Passenger Vehicles	15.07
Commercial Vehicles	4.66
Three Wheelers	2.95
Two Wheelers	77.32

4. Automobile Production Trends

Category	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Passenger Vehicles	1,309,300	1,545,223	1,777,583	1,838,593	2,357,411	2,982,772	3,123,528
Commercial Vehicles	391,083	519,982	549,006	416,870	567,556	760,735	911,574
Three Wheelers	434,423	556,126	500,660	497,020	619,194	799,553	877,711
Two Wheelers	7,608,697	8,466,666	8,026,681	8,419,792	10,512,903	13,349,349	15,453,619
Grand Total	9,743,503	11,087,997	10,853,930	11,172,275	14,057,064	17,892,409	20,366,432

5. Automobile Domestic Sales Trends

Category	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Passenger Vehicles	1,143,076	1,379,979	1,549,882	1,552,703	1,951,333	2,501,542	2,618,072
Commercial Vehicles	351,041	467,765	490,494	384,194	532,721	684,905	809,532
Three Wheelers	359,920	403,910	364,781	349,727	440,392	526,024	513,251
Two Wheelers	7,052,391	7,872,334	7,249,278	7,437,619	9,370,951	11,768,910	13,435,769
Grand Total	8,906,428	10,123,988	9,654,435	9,724,243	12,295,397	15,481,381	17,376,624

6. Automobile Exports Trends:

Category	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Passenger Vehicles	175,572	198,452	218,401	335,729	446,145	444,326	507,318
Commercial Vehicles	40,600	49,537	58,994	42,625	45,009	74,043	92,663
Three Wheelers	76,881	143,896	141,225	148,066	173,214	269,968	362,876
Two Wheelers	513,169	619,644	819,713	1,004,174	1,140,058	1,531,619	1,947,198
Grand Total	806,222	1,011,529	1,238,333	1,530,594	1,804,426	2,319,956	2,910,055

C) BASIS & PRESUMPTIONS

1. The basis for calculation of production capacity is on single shift basis, working of 25 days per month on 75% efficiency. The required for achieving envisaged capacity utilization is assumed as one year.
2. BEP for the scheme has been calculated on full capacity utilization.
3. Rate of interest has been taken as 15% on an average. This, however, is likely to vary depending upon the financial outlay and the location of the unit.
4. Labour wages have been taken on the basis of minimum applicable. These are likely to change depending upon the location of the project.
5. Rental charges of Rs.40/- per sq. mtr. Per month has been taken on an average. This figure is likely to vary depending upon the location of the unit.
6. Margin money requirement differs from project to project and type of entrepreneurs such as women, SC/ST, physically handicapped etc. and the minimum margin money usually asked by the financial institutions and banks is 15%. Margin money up to 25% in some cases is also asked. The entrepreneurs may check the margin money requirement from financial institutions for the project.
7. Term of loan differs from one financial institution to another and in gestation minimum period is normally 6 months and it could be 2 years. Maximum period for repayment of loan is 7 years including gestation period. The exact terms and conditions may be found by the entrepreneurs from the concerned financial institutions.

8. The cost of machinery & equipments as indicated in the scheme are approximate those ruling at the time of preparation of the scheme. The entrepreneur may check the exact price for specific make and model of the machine selected.
9. Non-refundable deposits, cost of preparation of project report etc. may be considered under pre-operative expenses.
10. The provision made in other respect viz; raw materials, utilities, overheads etc. are drawn on the basis of standard variation and output. The cost indicated against each are approximate and based on local market condition and observations. The entrepreneur may find out the exact cost from the concerned sources.
11. The operative period of this project is estimated to be about 10 years considering technology obsolescence.

D) IMPLEMENTATION SCHEDULE:

Sl. No.	Activity	Period
1.	Quotation period	1 month
2.	Provisional Registration	2 months
3.	Sanction of loan	
4.	Delivery of machines & equipments, installation, electrification, testing etc.	4 months

E) TECHNICAL ASPECTS:

(i) Quality Control and Standards

The components i.e. Auto Head Light Assembly should be manufactured strictly as per drawing of Automobile manufacturer, because any deviation beyond the tolerance limits will definitely lead to fitment problem as these components are subjected to close assembling.

The surface treatments should be done as per the prescribed norms only otherwise it may lead to a lot of rejections.

(ii) Production Capacity (per annum):

Item	Quantity(Nos.)	Value (Rs.)
FUEL PUMP SERVICING	2496	14,97,600

(iii) Approximate Power Requirement:

5 KW

(iv) Pollution Control:

Not required.

F.FINANCIAL ASPECTS

1 Fixed capital

a) Land & Building		100 sq.mtrs.					
		Rented				Rs.	4000
		Two months Deposit				Rs.	8000
b) Machinery and Equipment				Quantity			
1	7.5 H.P , 3 Phase, 415V, 50cycles, 8 cylinders Diesel Fuel Pump Set Bench			1	Rs.		1500000
2	Injector Testor			1	Rs.		20000
		Total			Rs.		1520000
10	Electro -civil installation @ 10% of the cost of Machinery				Rs.		152000
11	Dies, Punches,Jigs and Fixtures, Hand tools & Measuring Instruments etc.				Rs.		5000
12	Office Furniture, computer with UPS and Printer and other appliances				Rs.		50000
					Rs.		1727000
c) Pre Operative Expenses @5% of Machinery and Equipment					Rs.		863500
Total Fixed Capital=a+b+c					Rs.		2598500

2 Working Capital

i) Personnel

Sl.	No.	Designation	No.	Salary/wages	Total		
	1	Engineer	1	15000	15000		
	3	SemiSkilled	1	6000	6000		
	4	Contractual	2	3000	6000		
				Total	27000		
		Perquisites @15% of Salary & wages			4050		
				Total	31050	Rs.	31050

ii) Raw Material Requirement

Sl.No.	Item	Ind/Imp	quantity	Rate (Rs)	Value		
	Consumables(kerosene, Diesel Cloth etc.						
1		indian	125	40	5000		
				Total	5000	Rs.	5000

iii) Utilities

		Consumption KWH/Unit	Rate				
1	Power	1000	7		7000		
2	water			L.S.	2000		
				Total	9000	Rs.	9000
iv)Other Contigent expenses							
Sl.No.							
1	Rent				4000		
2	Telephone/Cellphone				500		
3	postage& Stationary				500		
4	Repair & Maintenance				2000		
5	Transportaion Charges				500		
6	Insurance				20000		
7	Sales Expanses				20000		
8	Misc.Expanses				10000		
				Total	57500		57500
Total Recurring Expenses =i+ii+iii+iv						Rs.	102550
Total working Capital = Recurring expenses for 1.5 months						Rs.	153825
Total Capital Investment= Fixed Capital+ working Capital						Rs.	2752325
G.FINANCIAL ANALYSIS							
1	Cost of Production(per annum)						
	i) Total recurring expenditure					Rs.	1230600
	ii) Depreciation on Machinery & Equipment @10%					Rs.	152000
	iii) Depreciation on Dies, Tools, Fixtures, office equipment& appliances etc @20%					Rs.	11000
	iv) Interest On Total Capital Investment @13%					Rs.	357802
					Total	Rs.	1751402
2	Turn Over(per annum)						
	i) By repair/servicing of different type of fuel pump per month	Rate	Monthly production			Rs.	208000
		1000	208			Rs.	208000
				Turn Over(per annum)		Rs.	2496000
3	Net Profit per annum=	Turn Over(per annum)-	Cost of Production(per annum)			Rs.	744598
4	Net Profit Ratio =	<u>Net Profit per annumX100</u>					29.83
5	Rate of Return=	<u>Turn Over(per annum)</u>					
		<u>Net Profit per annum*100</u>					27.05
6	Break even Point	Total Capital investment					
	Fixed Cost						
	Total depreciation					Rs.	163000
	Interest					Rs.	357802
	40% of salary & wages					Rs.	12420
	Rent					Rs.	48000
	40% of other contingent expenses excluding rent					Rs.	256800

Total

Rs.

838022

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

52.95

Names & Address of Machinery & Equipment Suppliers:

1. M/s Rajani Traders & Balaji Machine Tools, Opposite Panchayat Samiti, Chalisgaon, Jalgaon-424101(MH)
2. M/s Atlas Machine Tools Corporation, G .T Road, Dholewal, Opp. Military Camp, Ludhiyana-141003, Punjab
3. M/s Krishna Machine Tools, 11-58/4, Fatehnagar Main Road, Near Masjid, Hyderabad