CHAPTER - 5

SECTION -A

PROFILE OF UNITS MANUFACTURING DIESEL ENGINE COMPONANTS

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SECTION - B

PROBLEMS OF UNITS MANUFACTURING DIESEL ENGINE COMPONENTS

A) Raw Material Problem

B) Financial Problem

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D) Labour Problem.

Introduction :

With the growth of diesel oil engine industry in Kolhapur a number of units manufacturing components of diesel engines were established. There are 220 such units, providing components to diesel engine industry. These units constitute cluster B.

A) **Organisational Setup** :

If units in cluster B are classified on the basis of organisation, it is found that most of the units are either proprietory or partnership. There are very few private limited units. Table 5.1 shows the organisationwise classification of units in cluster B.

Table 5.1

Organisationwise Classification of units manufacturing components

Organisation	Proprietory	Partnership	Private Limited	Total
Number of Units	22 (51.16)	19 (44.18)	2 (4.65)	43 (100)

Table 5.1 shows that proportion of proprietory and partnership units in cluster B is higher (51.16 and 44.18 percent respectivly) than that of proprietory and partnership units in cluster A (47.05 and 41.17 percent respectivly) (Table 4.1).

It was observed during survey that out of 43 units 5 units (11.62 percent) were established during period of 1950 to 60; 23 units in cluster B (53.48 percent) were established in decade 1961 to 70, 10 units (23.25 percent) were established in decade 1971 to 80 and five units were established after 1980.

No change in organisation was observed in this Cluster.

B) **Educational Background of entrepreneurs** :

Table 5.2 reveals educational achievement of entrepreneurs in different units in cluster B.

Table 5.2
Educationwise Classification of entrepreneurs in different organisations in Cluster B

Educational Qualification	Proprietory Units	Partnership Units	Private Limited	Total Units
1) Uneducated	1 (4.54) (100)	-	-	1 (2.32) (100)
2) Primary	2 (9.09) (66.66)	1 (5.26) (33.33)	-	3 (6.97) (100)
3) S.S.C.	5 (22.72) (55.55)	4 (21.5) (44.44)	-	9 (20.93) (100)
4) Eleventh Twelfth	1 (4.54) (50)	1 (5.26) (50)	-	2 (4.65) (100)
5) Graduate	8 (36.36) (44.44)	9 (47.36) (50)	1 (50) (5.55)	18 (41.86) (100)
6) Engineering Graduate	1 (4.54) (33.33)	2 (10.52) (66.66)	-	3 (6.97) (100)
7) Engineering Diploma	1 (4.54) (100)	-	-	1 (2.32) (100)
8) ITI	3 (13.63) (50)	2 (10.52) (33.33)	1 (50) (16.66)	6 (13.95) (100)
Total	22 (100) (51.16)	19 (100) (44.18)	2 (100) (4.65)	43 (100) (100)

NOTE : 1) Figures show number of units.

2) Figures in upper bracket relate to percentage of vertical total and those in lower bracket show percentage of horizontal total

Table 5.2 cannot that majority of units are run by graduates (41.8 percent) to be followed by S.S.C. pass entrepreneurs (20.93 percent), very few of them are illiterate (4.45 percent) and primary educated (9.30 percent). Graduates were observed in all the three types of organisations. However, percentage of graduate entrepreneur was higher in partnership units (47.36 percent) than in proprietory (36.36 percent) units. Commerce or Arts graduates have established units between the decade of 1961 to 70.

There were comparativly very few units (6.97 percent) established by engineering graduates and engineering diploma holder (2.32 percent). Diesel engine component manufacturing operations can be carried out by non technical persons. That may be the reason for preponderance of non technical entrepreneurs.

C) **Machinary** :

The manufacturing units in cluster B also require different types of machinery for various manufacturing operations like shaping, turning, cutting and drilling. Table 5.3 shows the organisationwise availability of machines.

Units in this cluster use Anil, Batala, Kirloskar, H.M.T. and Rajkot make lathes. Table 5.3 shows that lathes used on an avarage are 3 in proprietory units, 2 in partnership units and 2 in private limited units. Usage of lathes on an avarage is higher in proprietory units (6) and in partnership units (4) in cluster A than that in proprietory units (3) and partnership units (2) in cluster B. This is because units in cluster A are larger in size with more manufacturing operations than units in Cluster B. All units in this cluster have lathes because lathes are used in multiple manufacturing operations.

Table 5.3

Organisationwise Classification of Machines

Machines Used	Proprietory	Partnership	Private Limited	Total
1) Lathes	70 (58.33) (60.34)	42 (37.83) (36.20)	4 (26.66) (3.44)	116 40.4) (100)
2) Shaping Machines	7 (5.83) (50)	6 (5.40) (42.85)	1 (6.66) (7.19)	14 (5.6) (100)
3) Drilling Machines	29 (26.86) (24.16)	19 (17.11) (37.25)	3 (46.66) (10.14)	51 (20.4) (100)
4) Special purpose machines	18 (15) (26.08)	44 (39.63) (63.76)	7 (46.66) (10.14)	69 (27.6) (100)
Total	124 (100) (48)	111 (100) (44.4)	15 (100) (6)	250 (100) (100)

NOTE : 1) Figures show number of machines.

2) Figures in upper bracket show percentage to vertical total and figures in lower bracket show percentage to horizontal total.

i) **Shaping Machines** :

Shaping Machines are used by very few units. Only 10 units (23.26 percentage) out of 43 units have these machines. (These machines are used in operations having horizontal movements). It is also observed from table 5.3 that shaping machines are more in proprietory units than in partnership units. Units having shaping machines are comparativly larger in size and they also do jobwork.

iii) **Drilling Machines** :

Table 5.3 shows that share of drilling machines in total machinary is 20.5 percent. Drilling machines are used by 25 units (58.14 percent). Some of them have one or two machines, while some of them have 6 machines. These units manufacturing camshafts and doing other job work. Proportion of drilling machine used is 1 in three units.

iv) **Special Purpose Machines** :

Total special purpose machines used in this cluster are 69 i.e. 27.6 percent of total machines. Out of 43 total units, 15 units (34.58 percent) have special purpose machines. These machines are locally fabricated. Some units have one or two special purpose machines while some of them have 5 to 7 special purpose machines. Units having 5 to 7 special purpose machines are proprietory units. These machines are generally used in making crank case; connecting rods and cylender heads.

Classification of machinary on the basis of education of producer (table 5.4) shows that total number of machines used by graduates (31.6 percent) is higher than machines used by other entrepreneurs. It is so because percentage of graduate entrepreneurs to total entrepreneurs is higher (41.36 percent). S.S.C. Qualified entrepreneurs have 29.2 percent machines. Egnineering graduates have only 14.4 percent machines.

A glance at the figures in table 5.4 gives a feeling that educational achievements of entrepreneurs do not determine in any way the number of machines used in the unit. It is the size of the unit and jobs done that determine the various types and number of machines

Table 5.4

Educationwise Classification of Machines

Educational Qualification of entrepreneurs	Lathe	Shaping Machine	Drilling Machine	Special Purpose Machine	Total Machine
Illitarate	2 (1.72) (50)	-	2 (3.92) (50)	-	4 (1.6) (100)
Primary Educated	13 (11.20)	-	4 (7.84) (23.52)	-	17 (6.8) (100)
S.S.C.	23 (19.82) (31.50)	2 (14.28) (2.73)	15 (29.41) (20.54)	33 (47.82) (45.20)	73 (29.2) (100)
Eleventh Twelfth	2 (1.72) (40)		1 (1.96) (20)	2 (2.89) (40)	5 (2) (100)
Graduate	44 (37.93) (55.69)	8 (57.14) (10.12)	22 (43.13) (27.84)	5 (7.24) (6.32)	79 (31.6) (100)
Engineering Graduates	8 (6.89) (22.22)	-	2 (3.92) (5.55)	26 (37.68) (72.22)	36 (14.4) (100)
Engineering Diploma	2 (1.72) (66.66)	1 (7.14) (33.33)	-	-	3 (1.2) (100)
I.T.I.	22 (18.96) (75.86)	3 (21.42) (9.09)	5 (9.80) (15.15)	3 (4.34) (9.09)	33 (11.6) (100)
Total	116 (100) (46.4)	14 (100) (5.6)	51 (100) (20.5)	69 (100) (27.6)	250 (100) (100)

NOTE : 1) Figures show number of machines.

2) Figures in upper bracket show percentages to vertical totals and that in lower brackets percentages to horizontal totals.

required. Graduate entrepreneurs show to have more of first three types of machines just because they are in majority. Actually avarage number of lathes (2.44)&drilling machines (1.22) used by them is less. Engineering graduates employ more special purpose machines. Shaping machines are used by those eleven entrepreneurs who undertake job work along with manufacturing oil engine components. Among the fifteen entrepreneurs using special purpose machines, 5 are S.S.C. qualified 8 are graduates, one each is engineering diploma holder and ITI trained.

Total machines used on an avarage by an illitarate producer is 2; by primary educated is 8, by S.S.C. is two and by graduate is 4.38.

D) **Raw Material** :

Units in cluster B produce various components of diesel oil engines. They require a variety of raw material. Generally, the components manufactured by these units are cylender heads, cylender liners, engine block, piston, piston rings, connecting rods, crankshafts, camshaft, timing gears, push rods, engine valves, fly wheel and gaskets. These parts require cast-iron, cast steel, forged steel and white metal. Cast iron is the main requirement of these parts. Almost all units in this cluster require cast iron and cast steel.

Cast iron is used for connecting rods, cylender heads, cylender liners, fly wheel and crank cases. Therefore the requirement of cast iron, manufacturing these items is higher than other metals.

Table 5.5 shows that cast iron required by proprietory units is maximum (92 tonnes 53.48 percent) followed by partnership units (80 tonnes, 46.51 percent). Private limited units require only 1.[illegible] tonnes

Table 5.5

Organisationwise Classification of raw material requirement per month.

(In tonnes)

Raw Material	Propriatory Units	Partnership Units	Private Limited	Total
Cast Iron	92 (77.96) (53.48)	80 (60.15) (45.97)	2 (100) (1.14)	174 (68.77) (100)
Mild Steel	20 (16.94) (60.60)	13 (9.77) (0.39)	-	33 (13.04) (100)
Sheet Metal	6 (5.08) (0.13)	40 (30.07) (86.95)	-	46 (18.18) (100)
Total	118 (100) (46.64)	133 (100) (52)	2 (100) (0.79)	253 (100) (100)

NOTE : 1) Figures in upper bracket indicate percentage to vertical total and that in lower bracket percentage to horizontal total.

cast iron per month. Cast iron required per month on an avarage by proprietory units is 4.18 tonnes. However, all units do not require same quantity of cast iron. Large proprietory units require upto 5 tonnes; where as small units require less than 1 tonne. Cast iron required per month by partnership units on an avarage is 4.21 tonnes. Cast iorn requirement varies in partnership units from unit to unit.

Mild steel is used in 10 units only. Mild steel is required for production of piston pins, engine block etc. Out of these 10 units 7 units are proprietory and 3 units are partnership. No private

limited unit in this cluster uses mild steel.

Sheet metal is used for the production of various spare parts. Only two units use sheet metal. Out of these units one unit is comparativly large partnership unit and the other is a proprietory unit.

Cast-iron used (Table 5.6) on an avarage by graduates is 3.63 tonnes. However the quantity of cast iron required by every graduate entrepreneur is not the same. Some of them require 0.5 to 1 tonne per month; whereas some require 5 tonnes cast iron per month. Requirement of S.S.C. qualified for cast iron on an avarage is 0.33 tonnes. Illitarate and primary educated entrepreneur require 1 ton of cast iron per month. I.T.I. entrepreneurs' requirement of cast iron on an avarage is 6.66 tonnes. Table 5.6 shows that illitarate and primary educated unit holders do not use mild steel, because these units manufacture cylender heads and crankshaft which do not require mild steel. Mild steel is used by only ten entrepreneurs. Who include graduates, S.S.C. and engineering diploma holders.

Sheet metal is used by only two units of which one is proprietory unit run by a graduate and another is a partnership unit run by S.S.C. qualified entrepreneur.

Table 5.6

Educationwise Classification of raw material requirement per month

Education	Cast-iron	Mild Steel	Sheet Metal	Total
Illitarate	1 (0.57) (100)	-	-	1 (0.39) (100)
Primary Educated	2 (1.14) (100)	-	-	2 (0.79) (100)
S.S.C.	35 (20.11) (43.75)	5 (15.15) (6.25)	40 (86.95) (50)	80 (31.62) (100)
Eleventh Twelfth	81 (4.59) (58.88)	1 (3.03) (11.11)	-	9 (3.55) (100)
Graduate	80 (45.97) (78.43)	16 (48.48) (15.68)	6 (13.04)	102 (40.31) (100)
Engineering Graduate	3 (1.72) (75)	1 (3.03) (25)		4 (1.58) (100)
Engineering Diploma	5 (2.87) (85.33)	1 (3.03) (16.66)	-	6 (2.37) (100)
I.T.I.	40 (22.98) (8.63)	9 (27.27) (18.36)	-	49 (19.36) (100)
Total	174 (100) (7.66)	33 (100) (3.75)	46 (100) (19.16)	253 (100) (100)

NOTE : 1) Figures in upper bracket show percentages to vertical total and in lower bracket to horizontal.

E) **Finance** :

Small scale units manufacturing components of diesel engines are smaller than units manufacturing diesel oil engine. As a result these units have smaller funds. However, these units also require, (i) equity or risk capital, and (ii) borrowed capital consisting of (1) long term capital for investment in equipment and other capital assets, and (2) short term capital for current needs.

Table 5.7 gives an idea of capital investment of units as classified by organisational structure. Units in this cluster show variety in size. As a result capital investment varies from unit to unit.

Table 5.7

Initial capital and capital at present organisationwise classification of capital investment.

Organisation	Initical investment Rupees	Capital at present in Rupees 1988
Proprietory	6,47,000 (14.33)	77,90,000 (43.97)
Partnership	29,96,000 (66.34)	78,23,000 (44.16)
Private Limited	8,70,000 (19.27)	21,00,000 (11.85)
Total	45,13,000 (100)	1,77,13,000 (100)

NOTE : Figures in bracket show percentages to vertical total.

Table 5.7 shows that 14.33 percent of the total capital is invested in proprietory units. Initial capital investment in proprietory units on an avarage was Rs. 294090. (Initial capital investment shows the capital investment of the units at the time of establishment of unit). Partnership units account for 66.34 percent of the total initial capital investment. Whereas, in private limited units it was 19.27 percent. Initial capital on an avarage in private limited units was Rs. initial capital on an avarage was Rs. 15,76,842 in partnership units and in proprietory units Rs. 28,409 . It was observed during survey that initial capital investment in all three types of organisations vary from unit to unit in range of Rs. 10,000 to Rs.50,00,000, Partnership concerns were leading in initial capital investment.

Capital at present accounts for 43.97 percent in proprietory units, 44.16 percent in partnership units and 11.85 percent in private limited units. Average initial capital invested per proprietory unit was Rs. 2,97,000, in partnership uits Rs. 1,57,684 & in private limited company Rs. 4,35,000. That means size of an average partnership unt was 5.30 times the size of an average proprietory unit and that of private limited company was 14.79 times. Even the size of average private limited company was 2.76 times the size of average partnership company. This was when units were established.

Coming to present situation, the avarage capital of a proprietory unit has grown to Rs. 3,54,090, that of partnership Rs. 4,11,736 and of private limited company Rs. 10,50,000. Comparision of these two derivatives indicates that by capital invested an average proprietory unit has grown by 12 times, a partnership unit by 2.6 times and a private limited company by 2.4 times. This needs hardly any comment.

Capital at present on an avarage is highest in private limited units (Rs. 10,50,000) followed by partnership units (Rs. 4,11,736), Capital at present on an avarage is lowest in proprietory units (Rs. 2,63,181). It was observed during survey that tiny and very small units having capital investment less than Rs. 50,000 (initial) are present in proprietory and partnership concerns. However partnership concerns show wide variations in capital investment because they include units having Rs. 10,000 to Rs. 40,00,000 of capital investment, whereas proprietory concerns have units having of capital investment from Rs. 10,000 to Rs. 5,00,000.

Table 5.8 gives an idea of capital investment by producers at different educational levels. Uneducated proprietory account for 0.66 percent of total initial capital. He owns tiny proprietory unit. His share in capital at present is reduced to 0.0056 percent. In the same way the units owned by S.S.C., 11th and 12th and I.T.I. educated owners have found their share in total investment reduced.

While primary educated, graduates and engineering diploma holders have improved their share in total investment at two points of time mentioned in Table 5.8.

Table 5.8

Educationwise Classification of Capital Invested

	Education	Initial Capital (in Rupees)	Capital at Present (in Rupees)
1)	Uneducated	30,000 (0.66)	1,00,000 (0.56)
2)	Primary Educated	2,00,000 (4.43)	15,68,000 (8.85)
3)	S.S.C.	9,50,000 (21.05)	39,05,000 (22.04)
4)	Higher Secondary Educated	3,20,000 (7.09)	11,00,000 (6.21)
5)	Graduate	20,80,000 (46.08)	82,10,000 (46.55)
6)	Engineering Graduate	1,90,000 (4.21)	7,50,000 (4.23)
7)	Engineering Diploma	48,000 (1.06)	3,00,000 (1.69)
8)	I.T.I.	6,95,000 (15.39)	17,00,000 (9.59)
	Total	45,13,000 (100)	77,13,000 (100)

NOTE : 1) Figures show capital investment.

2) Figures in bracket show percentage to vertical total.

In case of present capital also partnership and proprietory units show variation from unit to unit. The variations in capital investment are more appearent in partnership concerns.

Table 5.9

Sources of capital in percentage

Sources	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
1) Own	-	1 (2.32)	5 (11.62)	7 (16.29)	8 (18.60)	3 (6.97)	4 (9.30)	6 (13.95)	1 (2.32)	8 (18.60)	43 (100)
2) Bank	2 (4.76)	4 (9.52)	9 (21.42)	3 (7.14)	7 (16.66)	11 (26.19)	3 (7.14)	2 (4.76)	1 (2.38)	-	42 (100)
3) Other Institution	1 (25)		1 (25)			1 (25)		1 (25)			4 (100)

NOTE : 1) Figures show number of units.

2) Figures bracket show percentages to horizontal total.

Sources of Finance :

Manufacturing units in cluster B raise finance from three main sources.

i) From own funds

ii) From banks

iii) Other sources

Own Capital :

Most of the manufacturers (almost all) raise capital from their own accumalated funds or savings (Table 5.9). However, percentages of own capital to toal capital varies from units to unit from 11 percent to 90 percent. There was only one partnership unit owned by graduates who raised only 20 percent finance from their own resources. Most of the producers raising less than 50 percent of the capital from own resources have proprietory (42.85 percent) and partnership ms (57.15 percent) units. Producers raising finance more than 50 percent were graduates, S.S.C. and engineering graduates. Organisationally partnership and private limited units raise more than 50 percent from their own resources. One of the important source to raise own capital is profit ploughed back.

Banks :

Most of the units in cluster B depend on bank loans, especially to meet current requirements, Proprietory and partnership units raise more than 50 percent of the finance through bank. Proprietory units raise 10 to 80 percent of their finance from banks; and private limited units raise 10 to 30 percent of their finance through bank loans and credit.

F) **Cost of Production** :

Cost incurred on production in relation to various factors of production varies from unit to unit in this cluster. Table 5.10 shows cost incurred on production in relation to various factors of production.

i) **Raw Material Cost** :

Cost incurred on raw material varies from unit to unit, depending upon the nature of production. There is only one unit which incures 25 percent of the cost on raw material. This unit does only job work without material because it is a sister concern of unit producing spare parts of diesel oil engine. Another unit incuring 35 percent of the total cost on raw material is also a proprietory unit. Majority of the units incurring 50 to 70 percent total cost on raw material are partnership units. Units which spend 71 to 80 and 81 to 90 percent are partnership and proprietory units respectivly. Frequent stoppage in production is a comman phenomenon in these units. As such, they are incurring losses. On one hand, price of their products are falling and on other cost of raw material is rising, as a result these units get very narrow profit or most of the times they are incurring losses.

ii) **Labour** :

Table 5.10 cannotes that 17 units i.e. 39.53 percent spend 1 to 10 percent of the total cost on labourer charges. These units are small proprietory and partnership units. Thirty seven point twenty percent of the total units incur 11 to 20 percent of the total cost on labour. These units are partnership and proprietory units doing jobwork. Units which are incurring more than 20 percent on labour are small proprietory and partnership units. These units were more labour intensive having one or two machines.

Table 5.10

Cost of Production as related to various components of cost given in percentage

Item	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
1) Raw Material		1 (2.32)	-	1 (2.32)	5 (11.62)	19 (44.18)	15 (34.88)	1 (2.32)	1 (2.32)	-	43 (100)
2) Labour	17 (39.63)	16 (37.20)	4 (9.30)	5 (11.62)	- -	1 (2.32)	-	-	-	-	43 (100)
3) Machining	18 (94.73)	1 (5.20)	-	-	-	-	-	-	-	-	19 (100)
4) Transport	36 (100)	-	-	-	-	-	-	-	-	-	36 (100)
5) Over-heads	30 (75)	10 (25)	-	-	-	-	-	-	-	-	40 (100)
6) Sundry	29 (70.73)	12 (29.20)	-	-	-	-	-	-	-	-	41 (100)
7) Advertisement	40 (100)	-	-	-	-	-	-	-	-	-	40 (100)
8) Profit	31 (100)	-	-	-	-	-	-	-	-	-	31 (100)

NOTE : 1) Figures show number of units.

2) Figures in bracket show percentages to horizontal totals.

iii) **Machining Charges** :

Machining charges account for 1 to 10 percent in 18 (41.86 percent) units. These units are having one or two machines and no special purpose machine. Therefore, whenever necessary they get components machined from other units by paying machining charges. Small proprietory units having few rudimentary machines incur higher machining cost.

iv) **Transport** :

Table 5.10 shows that out of 43 units, 36 units (83.72 percent) pay transport charges. It was observed that transport charges account for 1 to 2 percent of the total cost of production. Remaining 7 units are small units which purchase raw material from local suppliers hence cost incurred on transport by these units is very negligible. Thirty six units purchase raw material partly from local suppliers and plartly from suppliers outside Kolhapur. Therefore, these units have to pay transport charges.

v) **Overhead and Sundry Expenses** :

Overhead charges account for 2 to 5 percent of the total cost and sundry expenses are 1 to 8 percent of the total cost.

vi) **Advertisement** :

Generally small proprietory and partnership units in this cluster give advertisement in local papers or in local periodicals. Cost incurred on advertisement varies from 1 to 5 percent of the total cost of production.

vii) **Profit** :

Profit varies from unit to unit depending upon the costs

incurred on various factors of production. Profits earned in proprietory units varies from 4 to 9 percent of total cost. In partnership units it varies from 3 to 15 percent. Private limited units receive profit 7 to 8 percent of total cost. Units getting 4 to 7 percent profit are small units having capital investment of Rs. 50,000 to Rs. 1 lakh.

G) **Labour** :

Units in cluster B use all types of labour; skilled, semiskilled and unskilled. Table 5.11 shows the organisationwise classification of units employing different types of labour.

Table 5.11
Organisationwise classification of total number of labourers employed

Organisation	Skilled	Semi-skilled	Unskilled	Total
Proprietory	77 (37.37) (50.99)	52 (26.13) (34.43)	22 (33.33) (14.56)	151 (32.12) (100)
Partnership	125 (60.67) (45.12)	114 (57.28) (41.15)	38 (57.57) (13.71)	277 (58.81) (100)
Private Limited	4 (1.94) (9.30)	33 (16.58) (76.74)	6 (9.09) (13.95)	43 (9.12) (100)
Total	206 (100) (43.73)	199 (100) (42.25)	66 (100) (14.01)	471 (100) (100)

NOTE : 1) Figures show number of labourers.

2) Figures in upper bracket show percentages to vertical total and that in lower show horizontal totals.

Table 5.11 gives classification of labourers on the basis of skill, working in different organisation. Table shows that percentage of all type of labour is higher in partnership units than in proprietory and private limited units. It is so because some partnership units are larger in size having multiple manufacturing operations. These units provide spare parts for production of standardised engines.

Table 5.11 shows that partnership concerns prefer more skilled labour (60.67 percent) than other concerns. There are only two private limited units employing 1.94 percent of the total skilled workers. Number of skilled workers used on an avarage by a partnership unit is six followed by proprietory units three. Private limited units use 3 to 4 skilled workers. Partnership units employ more skilled labourers because they use special purpose machines in more number (table 5.3). Small proprietory and partnership units prefer experienced, semi-skilled labourer to skilled labour because wages of skilled labourers are higher than that of semi-skilled labourers which these units can not afford to pay. By getting on job training and experience semi skilled worker can work as efficiently as skilled worker can.

Number of semi-skilled labourers used on an avarage by private limited units is highest (16) followed by partnership units (6). Proprietory units use two or three workers. There are only 6 firms using unskilled workers (57.57 percent) of total unskilled workers are used in partnership units. Partnership firms being larger in size (table 5.7) they employ more of each type of labourer.

Table 5.12

Educationwise Classification of Labourers employed

Educational Qualification of producer	Type of labourers employed Skilled	Semi-skilled	Unskilled	Total
1) Uneducated	2 (0.97) (100)	-	-	2 (0.42) (100)
2) Primary Educated	12 (5.82) (42.85)	9 (4.52) (52.14)	7 (10.60) (25)	28 (5.94) (100)
3) S.S.C.	65 (31.55) (48.87)	57 (28.64) (42.85)	11 (16.66) (8.27)	133 (28.23) (100)
4) Eleventh Twelfth	4 (1.94) (28.52)	1 (0.50) (7.14)	9 (13.63) (64.28)	14 (2.97) (100)
5) Graduate	105 (50.97) (39.32)	105 (67.83) (50.56)	27 (40.90) (10.11)	237 (56.68) (100)
6) Engineering Graduate	2 (0.97) (10)	9 (4.52) (45)	9 (13.63) (55)	20 (4.24) (100)
7) Engineering Diploma	4 (1.94) (50)	1 (0.50) (12.5)	3 (4.54) (37.5)	8 (1.69) (100)
8) I.T.I.	12 (5.82) (12.63)	17 (8.54) (17.89)	1 (4.54) (3.1[illegible])	30 (20.16) (100)
Total	206 (100) (43.73)	199 (100) (42.25)	66 (100) (14.01)	471 (100) (100)

NOTE : 1) Figures show number of workers.

2) Figures in upper bracket relate to percentages to vertical totals and that in lower show percentages to horizontal totals.

Graduate entrepreneur employ on an avarage 5.83 skilled workers (Table 5.12). Nine graduate employs 3 to 5, 7 graduates 6 to 10 and one graduate producer employes 15 skilled workers. It is because they have large size proprietory and partnership units equipped with modern as well as special purpose machines. Eight graduates have special purpose machines (See discussion on Table 5.4). They employ on an avarage 13.16 workers.

Table 5.13
Labour to machine ratio

Organisation	Number of Labourers	Number of of machines	Ratio
Proprietory	151	120	1.25:1
Partnership	277	111	2.49:1
Private Limited	43	15	2.83:1

i) **Labour Machine Ratio** :

Table 5.13 reveals that labour to machine ratio is higher in private limited units than in partnership and proprietory units. It means that private limited units are more labour intensive than other units. Partnership units also make use of more labour. It is so because labour is fexible factor of production. At peak season production can be increased by employing more labour.

Here the trend appears to be opposite of that experienced in case of units in cluster A. Table 4.14 indicated fall in labour machine ratio with rise in the form of organisation.

ii) **Wages of Labour** :

Most of the component manufacturing units covered by the present survey are small units. On most occasions actual wages are fixed by personal negotiations depending upon the skill of worker and his experience. It was observed during survey that the wages given

by units in cluster B, to all type of labour are lower than that given by units in cluster A. To illustrate the point, wages given by units in cluster A to skilled worker are Rs. 1000 to Rs. 1500 per month; whereas wages given by units in cluster B are Rs. 700 to 1000 per month.

Skilled labourers in this cluster get Rs. 700 to Rs. 1000 per month. Semi-skilled get Rs. 300 to 800 per month and unskilled get Rs. 400 to 700 per month. Wages given to labour differ from unit to unit depending upon the nature of work, seniority of worker and financial ability of employer. Table 5.14 reveals the picture of wages given by different units.

Very tiny units, due to weak financial position gave wages around Rs. 500. No skilled worker was paid less than Rs. 700 per month and no unskilled labourer more than Rs. 600. Semi-skilled workers were between these two extremes.

iii) **Increments** :

It was observed during survey that, many units did not have any pre-planned scheme of annual increments. Annual increments in wage depend upon the labour market conditions and profitability. It was also observed that many proprietors were not in favour of giving annual increments in wages.

Table 5.14

Classification of units giving wages to different type of labour.

Wages (in Rupees)	Skilled Labour	Semi-skilled Labour	Unskilled Labour	Total
1 - 100	-	-	-	-
101 - 200	-	-	1 (12.5) (100)	1 (1.33) (100)
201 - 300				
301 - 400	-	2 (6.25) (40)	3 (37.5) (60)	5 (6.66) (100)
401 - 500	-	6 (18.75) (66.66)	3 (37.5) (33.33)	9 (12) (100)
501 - 600	-	6 (18.75) (85.71)	1 (12.5) (14.28)	7 (9.33) (100)
601 - 700	-	8 (25) (100)	-	8 (10.66) (100)
701 - 800	9 (25.71) (50)	9 (28.12) (50)	- (100)	18 (24) (100)
801 - 900	12 (34.58) (92.30)	1 (3.12) (7.69)	-	13 (17.33) (100)
901 - 1000	14 (40) (100)	-	-	14 (18.66) (100)
Total	35 (46.66) (100)	32 (100) (42.66)	8 (100) (10.66)	75 (.00) (100)

NOTE : 1) Figures show number of units.

2) Figures in upper bracket show percentages to vertical total and that in lower bracket show percentage to horizontal total.

iv) **Bonus** :

Bonus is given at the time of Diwali. But bonus is not given at the rate prescribed by wage Board (8.33 percent). It is below 8.33 percent of the annual wages of the worker. Bonus is given to only permanent workers. This is deplorable in relation to the position of workers employed in units in cluster A. The rate of bonus in many units in cluster A is higher than that in units in cluster B.

v) **Facilities Extended to Workers** :

Apart from these monetory emoluments these units extend certain benifits to their workers such as free medical aid, snacks and tea, intrest free loans, clothes or bicycle. However, all of these facilities are not given at a time. Only one or two facilities like free medical aid or clothing, tea or snacks are given. No unit in cluster B gives facilities like incentive or sales promotion to workers as they are given by units in cluster A.

Organisationally, partnership firms give more facilities to workers than proprietary units. However, these facilities are not given willingly. They are given only when they were hardly pressed by workers.

Sales of Units Manufacturing Components of Diesel Engines :

Diesel engine component manufacturers sell their components within Kolhapur and outside Kolhapur. Total sale of 43 units surveyed was Rs. 13,18,02,000 in 1988-89. Sale of proprietory units on an avarage was Rs. 5,84,127. Sale of partnership unit on an average was Rs. 1,18,105 and that of private limited unit was Rs. 5,25,000/-.

Educationwise distribution of sale shows that primary educated have sale on an avarage Rs. 2,83,333. S.S.C. Educated producers have sale on an average Rs. 2,00,000, Higher Secondary educated have sale on an average Rs. 1,67,666. That of graduates on an average is Rs. 8,86,000. ITI have sale on an average Rs. 3,43,333.

H) **Market for the Spare Parts of Diesel Oil Engine** :

Market for diesel oil engine components is widespread and scattered over a large geographical area. Manufacturing units in Kolhapur supply spare parts to diesel engine manufacturers not only in Kolhapur but also to manufacturers at remote places. A substantial part of their production is supplied to large componies like Kirloskar Oil Engines Limited, Cooper, H.T.C. Diesel etc. located at Pune, Rajkot, Hydrabad, Madras, Agra. Benglore etc.

a) **Nature of Component Market** :

As a number of manufacturers supply spare parts to diesel engine manufacturers, market for components of diesel oil engines is highly competitive and imperfect. Prices of spare parts of same quality differ. Market of components is segmented like the market for oil engines. It is so because components are supplied to different manufacturers of diesel engine according to their requirements. Some units supply components of sophisticated engines having ISI mark; whereas some units supply spare parts of conventional non-standardised diesel engines. Naturally they have different customers. These are divided into two classes.

i) Manufacturers of sophisticated diesel oil engines having ISI mark.

ii) Manufacturers of old and conventional engine (non standerdised).

b) **Market Sale Outlet** :

The important problem, for any small scale unit is the choice of proper trade channel. If the customers are limited in number and are all concentrated in a small area and if product requires special service, one may do well to establish a direct link of contact between the manufacturer and buyer. On the other hand, if customers are very large in number and scattered all over a wide area, it will not be possible for the manufacturer to reach them directly.

As diesel engine components market is scattered and spread over a large geographical area component manufacturers take help of agents. In local market (at Kolhapur) they have direct contact with engine manufacturers but in case of remote customers, they reach market through agents.

Thus diesel engine components manufacturers use only two distribution channels to reach their product in market.

1) They reach in market either directly or 2) through agents. It is observed during survey that 29 units out of 43, (i.e. 67.44 percent) have direct contact with customers. Only 6 units (13.95 percent) go through agents.

Table 5.15 shows organisationwise classification of sale of component through various channels.

Table 5.15 shows that proprietory and partnership units have direct contacts with customers. 95.045 percent proprietory units sell 50 to 90 percent of their product directly to the customers. Only three proprietory units (13.63 percent) sell through both channels,

Table 5.15

Organisationwise classification of distribution of sale through various channel.

Percentage of sale of components	Direct			Agents			Total
	Proprietory	Partnership	Private Limited	Proprietory	Partnership	Private Limited	
0 - 10	-	-	-	-	-	-	4
11 - 20	1 (4.76)	-	-	1 (33.33)	2 (66.66)	-	4 (9.09)
21 - 30	-	-	-	1 (33.33)	1 (33.33)	-	2 (4.54)
31 - 40	-	-	-	1 (33.33)	-	-	1 (2.27)
41 - 50	7 (33.33)	-	-	-	-	-	7 (15.90)
51 - 60	1 (4.76)	1 (6.66)	-	-	-	-	2 (4.54)
61 - 70	1 (4.76)	1 (6.66)	-	-	-	-	2 (4.54)
71 - 80	1 (4.76)	1 (6.66)	-	-	-	-	2 (4.54)
81 - 90	10 (47.61)	-	-	-	-	-	10 (22.72)
91 - 100	-	11 (73.73)	2 (100)	-	-	-	13 (3023)
Total	21 (100)	15 (100)	2 (100)	3 (100)	3 (100)	-	43 (100)

NOTE : 1) Figures show number of units.

2) Figures in bracket show percentage to vertical totals.

However sale through agent is very small (10 to 40 percent) Partnership Units have direct sale higher than sale through agents. Private limited units supply cent percent of their product directly.

Generally small manufacturers get job orders from local manufacturers as well as from other manufacturers and they supply components according to requirements of manufacturing units. Hence, they have direct contact with manufacturers. However, in remote places and in villages where the components required for replacement and repairs are reached through agents.

c) **Market Sale Outlet by Region** :

Components of diesel engines are sold at Kolhapur, at state and national level. Very few export to foreign countries.

Table 5.16 shows that 30 units (69.76 percent) of the total units have supply of components within Kolhapur. Out of 30 units supplying to Kolhapur market 19 units (63.33 percent) sell more than 50 percent of their product within Kolhapur. Majority of the units having sale more than 50 percent within Kolhapur are proprietory units. (16 units i.e. 53.35 percent of total proprietory units); 6units are partnership (20 percent) and two of them are private limited units. It was observed during survey that only partnership units (20 percent) supply less than 50 percent within Kolhapur. Both private limited units supply more than 50 percent of their product within Kolhapur.

It was also observed that producers at all educational levels except engineering graduate producers supply more than 50 percent of their product within Kolhapur.

Table 5.16

Regionwise Classification of Sale of Components

Percentage of Sale	Kolhapur	State	National Level	Export	Total
1 - 10	2 (6.66)	3 (9.67)	1 (50)	-	6 (10.16)
11 - 20	3 (10)	-	-	-	3 (5.08)
21 - 30	3 (10)	7 (22.58)	-	1 (16.66)	11 (18.64)
31 - 40	-	2 (6.54)	-	-	2 (3.38)
41 - 50	3 (10)	6 (19.35)	-	-	9 (15.25)
51 - 60	3 (10)	5 (16.12)	-	-	8 (13.55)
61 - 70	2 (6.66)	-	-	2 (33.33)	4 (6.77)
71 - 80	2 (6.66)	6 (19.35)	-	3 (50)	11 (18.64)
81 - 90	3 (10)	1 (3.22)	1 (50)	-	5 (8.47)
91 - 100	9 (30)	1 (3.22)	-	-	10 (14.49)
Total	30 (100)	31 (100)	2 (100)	6 (100)	69 (100)

NOTE : 1) Figures show number of units.

2) Figures in bracket show percentage to vertical total.

It was also observed that producers at all educational levels except engineering graduate producers supply more than 50 percent of their product within Kolhapur.

A number of diesel engine component manufactuers supply their product to various large companies in organised sector in state and small units located at other places outside Kolhapur.

Table 5.16 shows that 72.09 percent of the total units supply their components to unit buyers outside Kolhapur. The components are mainly supplied to manufactures at Pune, Bombay, Jalgaon, Dhule, Patnagiri, Satara etc.

Out of 31 total units supplying to the state level, 18 units (58.07 percent) supply less than 50 percent of the product at state level, where-as 13 units (41.93 percent) supply more than 50 percent of their product at state level. It was observed during survey that most of the proprietory units (15 units i.e. 50 percent) supply less than 50 percent of their product at state level. Only 2 proprietory units (6.45 percent) supply more than 50 percent at state level. It was also observed that graduates (55 percent), engineering graduates (50 percent) and S.S.C. (11.11 percent) had more than 50 percent of their sale at state level. Private limited companies supply half of their produce at state level and half within Kolhapur.

Very few units (16.27 percent) manufacturing components of diesel engines supply spare parts to many units outside the state. At national level diesel engine components are supplied to Rajkot,

Hydrabad, Agra, Banglore, Coimbatore etc. Only 16.27 percent units have sale of components at national level. Out of these units selling their components at national level 6 units (85.71 percent) supply more than 50 percent of their product outside state and only one unit (14.28 percent) supplies less than 10 percent outside state. It was observed during survey that proprietory units were leading in supplying their output outside state and only two units were partnership units.

It was also noted during survey that graduates were leading in supplying components outside state (62.5 percent). They supply more than 50 percent at national level. S.S.C. Qualified (2, i.e. 25 percent) send 30 to 40 percent of their product at national level.

There are total 5 units exporting spare parts to foreign countries. Out of 5 units 1 sample units was studied during survey.

I) **Export of Components of Diesel Oil Engine** :

Very few units (5 units) in Kolhapur export diesel engine parts to foreign countries. The organisations which provide components to foreign countries are mainly large partnership and private limited units. Table 5.17 gives an idea of export of components by various units in Kolhapur.

Table 5.17 shows that major parts of diesel engine components are exported to middle East and Far East countries. Majority of these units (four out of five) are partnership units. Spare parts provided by these units are used in standardised diesel engines. All these units use advanced tools to test their product. As a result they can provide best quality components and demand for their spare parts is growing.

Table 5.17

Export of Diesel Engine Components by Various Units
Year 1988 - 89.

Name of the Unit	Component	Places where the components are exported	Annual Value of export (in Rupees)	Percentage to total
1) Mahesh Forge	Crank Shaft Forging	Middle East & Far East Countries.	5272000	85.40
2) M.H.Hudli Engineering Works	Diesel Engine Spare Parts	Middle East Countries	400000	6.5
3) Bharat Cam Industries	Cam Shaft Camshaft assembly	Middle East Bangaladesh Philipines, Nygeria, Morokko	355000	5.78
4) Sacheen Enterprises	Oil Engine Filters	Middle East	129976	2.13
5) Anant Springs	Springs and Oil Engine Spares	Arab Countries	10000	0.18
Total			6166976	100

J) **Production and Capacity Utilization** :

Production of diesel engine components in Kolhapur 1988-89 was of the value of Rs. 7,52,99,000. Production in proprietory units on an average was Rs. 30,89,181 in 1988-89. In partnership units it was on an average Rs. 4,58,562 and in private limited units it was on an average Rs. 27,87,500.

Production of an industry depends very much upon capacity utilization of that unit.

Table 5.18

Capacity utilization in units in Cluster B.

0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
Bad Capacity Utilization					Good Capacity Utilization		Very Good Capacity Utilization			
-	-	1 (2.32)	6 (13.95)	7 (16.27)	13 (30.23)	7 (16.27)	9 (20.93)			43 (100)

NOTE : 1) Figures show number of units.

2) Figures in bracket show percentages to horizontal total.

Capacity utilization below 50 percent is regarded as bad performance. Table 5.18 shows that 14 units (32.54 percent) units come under this catagory. Twenty units (46.50 percent) show generally good capacity utilization; whereas 9 units (20.93 percent) show very good capacity utilization.

In cluster A the percentage of units exhibiting bad performance was 35.29 (table 4.20), in case of units in cluster B it is 32.54 percent. As against this percentage of units having good capacity utilization is more in cluster B units (46.50 percent) as compared to those in cluster A (29.41 percent). Naturally units showing very good performance are exceptional in cluster B.

Organisationwise classification of capacity utilization (Table 5.19) shows that less capacity utilization in greater proportion (36.36 percent) in proprietory units followed by partnership units (31.57 percent). All private limited companies have very good capacity utilization (71 to 80 percent). They are followed by partnership units

Table 5.19

Organisationwise Classification of Capacity Utilization.

Organisation	Percentage of Capacity Utilization									
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Proprietory	-	-	-	2 (33.33)	6 (85.71)	7 (53.84)	5 (71.42)	2 (22.22)	-	-
Partnership	-	-	1 (100)	4 (66.66)	1 (14.28)	6 (46.15)	2 (28.57)	5 (55.55)	-	-
Private Limited	-	-	-	-	-	-	-	2 (22.22)	-	-
Total			1 (100)	6 (100)	7 (100)	13 (100)	7 (100)	9 (100)	-	-

NOTE : 1) Figures in columns show number of units.

2) Figures in bracket show percentages to vertical totals.

(26.31 percent). Very few proprietory concerns (two i.e. 19.09 percent) show very good performance.

Educationwise classification of capacity utilization shows that producers at all educational level show good performance. Primary educated producers show very good performance. However, majority of the units owned by graduates (83.33 percent) show bad performance.

It was observed during survey that under utilization of capacity in majority of the units was mainly due to scarcity of raw material and paucity of finance. Under utilization of acapacity due tofalling demand was secondary reason.

K) **Future Plans** :

Many units manufacturing components of diesel oil engine have prepared schemes for the future development of units and have taken steps to implement them. These units have future plans regarding capacity enhancement, search for new market or change in production. The schemes of expansion were most favoured for the reason that many of these units have increased their production due to rising demand for components. Naturally it is for those which produce standardised components. The schemes of divesification were implemented mainly to fight intense competition in traditional lines. Plans to search new market were implemented by very few units.

It was noticed during survey that only 39.33 percent units i.e. (17 units out of 43) had plans regarding future development and 60.46 percent units (26 units) had no plans regarding future development. Total 17 units which had plans included 8 proprietory units; 7 partnership and 2 private limited firms.

Table 5.20 shows organisationwise classification of future plans.

It was observed during survey that those units which had future plans did not plan for all the three programme. Each of them had only one or two plans regarding future development. Out of 8 total proprietory units having plans 3 units have plan for capacity enhancement and developent of new market, 6 units wanted to change production due to falling demand for components mainly for horizontal traditional engines.

Table 5.20

Organisationwise Classification of Future Plans

Organisation	Capacity Enhancement	New Market	Change in Production	Total Units
1) Proprietory	5 (41.66) (35.71)	3 (42.85) (21.42)	6 (37.5) (42.85)	14 (32.55) (100)
2) Partnership	6 (50) (33.33)	3 (42.85) (16.66)	9 (56.25) (50)	18 (41.86) (100)
3) Private Limited	1 (8.33) (33.33)	1 (14.28) (33.33)	1 (6.25) (33.33)	3 (6.97) (100)
Total	12 (100) (27.90)	7 (100) (16.27)	16 (100) (37.20)	35 (100) (100)

NOTE : 1) Figures show number of units.

2) Figures in upper bracket show percentage to vertical total and that in lower show percentage to horizontal total.

Partnership units also show very little intrest in expansion of their units because their existing capacity is not fully utilized. Those units which are interested in diversification have programme of expansion and capacity enhancement.

Change in production was favoured by 16 (37.20 percent). Out of 16 total units which wanted to change their production, proprietory and partnership units (13.95 percent and 56.25 percent respectivly) are very small in size and realise the falling demand for their components hence they want to change production.