

C H A P T E R. NO. II.

HISTORY AND DEVELOPMENT OF THE WALCHANDNAGAR
INDUSTRIES LTD., ENGINE AND FOUNDRY DIVISION,
SATARA ROAD.

ORIGIN AND GROWTH.

PRODUCTION.

RECENT TECHNICAL COLIABORATIONS.

STATEMENT OF THE COMPANY SALES.

ORGANISATION
CHART.

HISTORY AND DEVELOPMENT OF ENGINE
AND FOUNDRY DIVISION, SATARA ROAD.

The Late Seth Walchand, founder of Walchand Group was a living legend, a man of total conviction with ambition to free India from her Economic shackles. He was a pioneer of Industrial Revolution in India. His foresight and untiring work has brought the present status and grandeur to the Walchand Group Industries.

THE WALCHAND GROUP.

The Walchand Group is one of the largest industrial complexes in India comprising Sixteen Companies with total manpower over 75,000. Wide range of its activities included automobiles, Aviation, shipping, civil construction works, heavy engineering and machine tools. Two giant public undertakings enjoying national and international reputation, i.e., Hindustan Aeronautics Ltd. and Hindustan Shipyard trace back their origin to Walchand Group. The effort of Walchand Group is to enhance India's technical capability to achieve self reliance with highest degree of perfection and quality.

Walchand Group has proved country's excellence in technical and engineering field on international level and brought home the laurels. Walchand Group has been trying constantly to make our country self - reliant.

The Walchand Industries Ltd., today comprises 4 major production units consisting of:-

1. Walchandnagar Industries Ltd.
Walchandnagar Dist - Pune.
2. Engine and Foundry Division (Cooper)
Satara Road Dist - Satara.
3. Machine Tool Division (Cooper)
Chinchawad, Pune.
4. The Precision Instruments Division (Tiwaç)
Dharwad - Karnataka.

Manufacturing activities in these units consists of sugar, cement, machinery, gears, sophisticated jobs for atomic project, jobs for space launch projects, boiler, machine tools like shaper, slotters, hobbbers etc. and high duty iron castings, internal compustion diesel engines, etc.

Now let us trace in brief the history of the Walchandnagar Industries Ltd., Engine and Foundry Division at Satara Road.

On the occasion of Shri. Ganesh Chaturthi in 1922 Sir Dhanjishah Cooper, Industrialist and then Governor of the Bombay State laid the foundation of this unit with full co-operation and support of the late Karmveer Bhaurao Patil, a founder of well - known educational institution, viz., Rayat Shikshan Sanstha, Satara. The site for the company was selected near a village named Padli located on the then meter gauge railway line. This meter gauge railway line connected Pune and Miraj and Bangalore. Later on it was converted into broad gauge. In the beginning the company was named as Satara Industrial Works and was engaged in the production of agricultural implements such as ploughs, sickles, sugar - cane crushers, fodder - cutting machines etc.

In 1932, Sir Dhanjishah Cooper took the British firm " Duncan Stratton Company " into partnership and renamed his company as " Hindustan Engineering and Implement Company ".

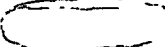
From 1933, 7 H.P. diesel engines were successfully manufactured in the factory under the supervision of the British technicians.

These engines were in great demand from flour mills, rice pounding mills and Saw mills. As these engines were very useful for the purpose of drawing water from wells for agricultural purposes, they were sold on large scale particularly to farmers. Previously these engines were used to be imported from Britain, U.S.A. The inventor of this engine was Dr. Rudolf Diesel. He was a German engineer.


This engine was first introduced to India by Marshall Sons and Co. Engines were in increasing demand and therefore, Dhanjishah Cooper undertook their production in this Hindustan Engineering and Implements Company. In the production of diesel engines in India, the Cooper Engineering Ltd. are the first. Cooper diesel engine is one of the best engines not only in India but also in foreign countries.

However after terminating the said agreement in 1940, the company was taken over by Walchand group and was known as 'Cooper Engineering Ltd.' The activities and products were diversified, thus ushering in a new era

of single cylinder horizontal diesel engine and with pumps for agricultural purposes, producing quality castings, plain as well as automatic looms etc.

Later on the company also received the Meehanite Metal licence from U.S.A. and became the sole selling Agents for Meehanite castings  and its foundry products and diesel engines received wide acclaim. It went on and on building national as well as international reputation for its quality products. Due to the quality of its products, it can raise its head with prestige in a highly competitive market.

Later on Machine Tools such as Shaping Machines, Drilling Machines were manufactured by this company and in 1960 its endeavour gave birth to a separate division for Machine Tools at Chinchwad (Pune), which is known as Machine Tools Division. This unit has established its name in national as well as international market. This unit at Chinchwad-(Pune) has got tremendous growth potentialities. Now it started shaking hands with foreign partners for collaborations and started making progress.

In 1939 Seth Walchand returned from America with firm determination to start a motor-vehicle manufacturing industry in India. In  his mind he had

the idea to acquire some running factory which was manufacturing engines, machines and machines tools.

After discharge of Duncan Stratton from partnership of Cooper, Walchand decided to give co-operation to Dhanjishah Cooper. Both of them decided that a separate company should be formed with an authorised share capital of Rs. 10,00,000 to be called as "Cooper Engineering Ltd." to which the "Hindustan Engineering and Implements Co." should be sold. Accordingly, Cooper Engineering Ltd. was formed and registered on 22nd May 1940 and on 25th May 1940 it purchased "Hindustan Engineering and Implements Co. with its factory and other assets for Rs. 6,66,000/-

The manufacture of this engine can be done with drilling machine and capston lathe. The manufacture of these engines requires such materials as meehanite castings, steel, pure iron, non-ferrous metal which are available in India. Sir Dhanjishah Cooper was the first manufacturer of diesel oil engine in India. He was followed by Ruston and Hornsby who started making their engine and by Kirloskar Brothers Ltd. Through enthusiasm and investment from Walchand

Hirachand, diesel oil engines were produced in addition to machine tools, power looms. The factory depends on its own foundry for its castings which started in 1939 and specialised in ' Mercantile ' high duty iron casting.

Before amalgamation, Cooper Engineering Ltd. raised its initial share capital of Rs. 7,00,000/-. The company had increased its share capital upto Rs. 14.19 and 21.00 lakh by the second and third lot in the year 1943 and 1944 respectively. The company had allotted bonus shares of Rs. 100 each and share capital was increased to Rs. 25.20 lakh. The company's share capital was Rs. 58.50 lakh in 1960-61 and increased it to Rs. 135.57 lakh in 1965. After issuing new bonus shares, the share capital was increased to Rs. 167.72 lakh. Authorised share capital of Walchand Industries Ltd. is Rs. 1 Crore (1,000 lakh) divided into 50,000, 10% cumulative Preference Shares of Rs. 100/- each, 50,000 Preference Shares of Rs. 100 each and 90,00,000 Equity Shares of Rs. 100 each. Issued, Subscribed and paid up share capital is 50,000 10% Cumulative Preference Shares of Rs. 100 each and 30,04,506 Equity Shares of Rs. 10 each. Out of which

172 874 Equity Shares were issued without payment being received in cash to the shareholders of the erstwhile Cooper Engineering Ltd. and Tiwac Industries Ltd., interms of the Scheme of Amalgamation sanctioned by the Bombay High Court.

P R O D U C T I O N .

The range of activities in this unit include the following :-

1. Manufacture of Internal Combustion Multi-Cylinder Diesel engines for automobile industry.
2. It meets the castings and jobbing requirements of the small as well as the mighty entrepreneurs from all over the country.
3. Intricate jobs for atomic energy are also undertaken.

This company has also started manufacturing medium duty shaping machines from last two years.

It is also doing jobbing machining for automobile products such as brake drums, bell housings flywheels for different automobile manufacturers such as M/S. Mahindra and Mahindra, M/S. Pal, M/S. Bajaj etc. This company has also developed the skill of machining high accuracy components for Department of Atomic Energy, Vikram Sarabhai Space Centre, Nuclear Fuel Complex, etc. Very recently this company has started fabrication activities for industrial machinery for cement, sugar industries.

This ' Engine and Foundry Division ' is capable of manufacturing intricate C.I. castings weighing from 1 Kg. to 12,000 Kgs. required for machine tools as well as automobile and other industry conforming to ISI grade IS : 210 : 1962.

It is catering to the requirements of its customers for various patterns required by them. Its pattern shop is capable of making thermocoal wooden as well as metallic patterns and equipped with copy milling machine.

P R O D U C T S.

The Engine and Foundry Division at Satara Road is engaged in the manufacture of the following :-

1. Diesel Engines.
2. Pumps.
3. Plain Looms.
4. Automatic looms.
5. Shaping Machines.
6. Slotting Machines.
7. Planning Machines.
8. Castings.
9. Vertical Turrent Lathes.
10. Gear Hobbing Machine.
11. Horizontal Boring Machine.
12. Special Purpose Machine.

PROPOSED EXPANSION.

The company has proposed to expand the capacity of four cylinder engine (MVC 4). Today the company has production capacity of 100 engines per month. The company plans to produce 400 engines per month.

RECENT TECHNICAL COLLABORATIONS.

A significant development which took place during the year ending 31st March, 1984 is that the company has concluded two technical collaboration agreements. One of these collaborations is with M/S. FRATELLI NEGRI MACHINE SUD S.R.l located in Capodrise, Italy, executed through their associates.

M/S. Technolice Ltd. London U.K. FNM are known for some of the most modern and efficient engines in the world. This would turn a new page in the history of the company. This collaboration covers the manufacture, in India, of light weight, extremely modern and highly fuel efficient diesel engines suitable for passenger cars, jeeps, buses, launches, light commercial vehicles and other applications. The different sizes of diesel engines covered under this collaboration range are GD 178 A and GD 178 AT of 1.3 litre capacity and

GD 178 B and GD 178 BT of 1.8 litre capacity with Horse Power range from 48 H.P. to 80 H.P. at speeds of 4,600 to 4,800 RPM and will include both naturally aspirated and turbo-charged versions. Demand for such diesel engines for automotive applications and particularly in the taxi trade, is expected to be substantial. The Italian collaborator is an extremely well known company among the automotive and diesel engine companies of the world.

The other technical collaboration is with M/S. HITACHI - SEIKI CO. LTD., a leading machine tool manufacturer of Japan, which took place on January 24, 1984. This collaborator enjoys a very high reputation, worldwide, for its machine tools. This collaboration covers the manufacture, in India, of Computerised Numerically Controlled (CNC) Machining Centres in vertical and horizontal versions. These CNC Machining Centres will be equipped with Automatic Tool Changers (ATC) thus providing a high degree of flexibility in machining operations. Use of CNC Machining Centres has revolutionized the production technology in the industrialised countries of the world and will have

similar effect in India. Higher productivity and improved quality are some of the salient features of a CNC Machining Centre. Manufacture of such complex and technologically very advanced machines require proper organisational and infrastructural arrangements. All necessary action towards this have already been initiated. Requisite approvals of the Government of India for both these collaborations have been obtained.

The company covers 114 acres of land of which the factory premises occupy 20 acres of land. As on 1st May, 1985 the company has employed persons of different qualifications as follows.

Highly skilled	78
Skilled	333
Un - skilled	232
Semi - skilled	573
Temporary	1
Apprentice	124

1,341 ✓

These are categories and not qualifications

THE COMPANY HAS THE FOLLOWING
DEPARTMENTS.

1. MVC - 4. Machine Shop.
2. MVC - 4. Assembly Shop.
3. Jobbing Machine and Assembly Shop.
4. Industrial Engineering (Jig & Tool)
5. Shaper Project.
6. Light Foundry.
7. Heavy Foundry.
8. Fetting.
9. Pattern Shop.
10. Inspection Shop (Quality Control)
11. Engine Development.
12. Heat Treatment.
13. General Stores.
14. Inward Section.
15. Mill Wright (Repairs & Maintenance)
16. Electrical.
17. Station Duty.
18. Civil.
19. IMD.
20. Personnel.
21. MTDC.

1. MVC - 4. MACHINE SHOP.

MVC - 4. is named by MVC 4 because this shop was previously utilised for the manufacturing of MVC-4 diesel engine components. MVC-4 is four cylinder vertical diesel engine. Machine Shop is equipped with excellent machinery that enables the Engine and Foundry Division to turn out Diesel engines of good quality. The components are split into two categories are major components and secondary components. Major components are cylinder block, cylinder head, crank shaft, cany shaft. Each of these four items has separate machine layouts to suit and economise their operations. All other components of the engine which are made in the premises of the factory are considered as secondary items. These are light items and are processed in general purpose layout of machines. This layout consists of centre lathe, turrets, capstan lathes, milling machines, grinding machines, etc.

2. MVC 4. ASSEMBLY DEPARTMENT.

The department of assembly is divided into two sections namely, main assembly and sub-assembly. For assembly of MVC - 4 engine and adjustable to machine

shop, there is assembly shop in which assembly of MVC-4 engine is done. To facilitate the assembly of an engine, there is conveyor line to carry out the engines being assembled. There are assembly fixtures, storing bins, assembly toolings, etc.

3. JOBING MACHINE SHOP.

The jobbing machine shop consists of various types of heavy duty and light duty machines. The major work of jobbing machine shop is to process the jobbing items. In this shop proof as well as finished machining of jobbing components is done.

4. INDUSTRIAL ENGINEERING DEPARTMENT.

This department includes four sections namely, Tool Designing Project, Codification and Incentive, Work Sampling and Method Study - Tool designing includes jig fixture, tackle, gauges designing. Project section is concerned with giving the report to higher authority about the feasibility of a new project. Codification means giving code numbers for each and every item except stationery which are coming inside the factory or going outside the factory. The Incentive Method Section is concerned with deciding

the standard norms or standard records of each individual (Person) so that productivity will increase by giving incentive. Five engineers, three draughtsmen, one typist and one clerk are engaged in this department.

5. JIG AND TOOL. (Tool Room Department)

This is the department in which mainly tooling items e.g. jigs, fixtures, tackles, mandrels, special sockets are issued to workmen engaged in production in various departments. Some precision orders are also executed by tool department. The orders include the following.

Order of the components required in the project of Bhabha Atomic Research Centre Trombay and components required in Vikram Sarabhai Space Centre, Trivendrum. Some components of engine and shaping machine are also manufactured in this department. This department is having two shifts only. In two shifts there are 43 employees.

6. HEAVY FOUNDRY.

This department is producing three types of castings in three varieties namely, machine tools

castings for Chinchwad factory at Pune, for Walchandnagar Industries Ltd., Walchandnagar i.e. castings for sugar and cement plants and castings for other customers. Weight range of castings is from 500 Kg. to 12 tons in single piece. It produces castings as per delivery schedules given by different customers. Overhead electric travelling cranes serve the department. The different sections of heavy foundry are :-

1. Sand Preparation so called as Sand Plant.
2. Moulding Section.
3. Core - Making.
4. Melting Section - It includes (A) Cupola Melting (B) Electric Furnace Melting.
5. Knocking Out of castings and general work.
6. Fettling.

Fettling includes the following Sub-Sections.

- A. Decring.
- B. Shot-blasting.
- C. Pneumatic Chipping.
- D. Hand Grinding.
- E. Hand Chipping.
- F. Primer Painting.

7. LIGHT FOUNDRY.

In this department, there are four sections which are meant for machine mouldings, hand moulding, cell moulding and melting section. In light foundry, other allied departments are core-shop, Sand section, General gang (work). This department is making mainly castings with special grades of cast irons i.e. from 17 tensile strength up to 35 tensile strength. Weight of casting is from 500 grams to 2 tons. Total monthly production is about 190 mt. tons to 225 mt. tons. There are three electric induction type furnaces. Two of them are of 3 ton capacity and one is having 1.5 ton-capacity. There are three shifts in light foundry and average output of the day is about 7.5 to 9.0 mt. tons on unit weight basis.

8. FETTLING.

The fettling department receives castings from heavy and light foundries for further operation. The operations in fettling include.

- i. Decoring of the castings.
- ii. Cutting the runner and risers of the castings.
- iii. Shot-blasting of the casting in pioneer machine.
- iv. Hand Chipping of the castings.

- v. Pneumatic Chipping of the castings,
- vi. Surface grinding of the castings.
- vii. Grinding the castings on pedestal grinder.
- viii. Painting of the castings.

9. SHAPER PROJECT.

1. This department receives castings from foundry and machine shop duly chipped, grinded and machined.

2. In this department an assembly of fine finished work is done to get better appearance.

3. Body, ram, cross slid, main gear such important parts are taken for bedding scrapping as per drawing requirements. When these operations are going on, in between all operations are checked by inspector.

4. After getting all the parts in the right position, main assembly starts.

5. Last but the most important is table machining. Two sides and top of the table is machined then it is checked as per drawing and inspected thoroughly by the inspection department.

10. ENGINE DEVELOPMENT DEPARTMENT.

The function of this department is to develop engine, to modify the old engine, to discover the faults of some parts of the engine to satisfy the customers. Another function is to produce maximum horse power engines with minimum costs.

11. MILL WRIGHT (Plant & Maintenance)

This department looks after maintenance of all machines in the factory. The function of this department is to check the lubrication of each machine. If the lubrication is not proper, it is checked in time. If there are faults in any machine, they are got repaired by this department. To erect machines in proper location required by production department is also the function of this department.

12. IMD DEPARTMENT.

This department is engaged in fabrication of all types such as cement machinery, sugar machinery, paper machinery, fabricated parts or jobs. There are three sections in I.M.D. Department namely :-

1. Gas - Cutting.
2. Welding and Assembly as per drawing.

All fabricated orders are carried out by this department. In addition to the above sections, there are drilling, marking, grinding, cutting, bending etc.

13. PATTERN SHOP.

The pattern shop of the company is manned by skilled pattern-makers who manufacture all types of patterns, Core - boxes, etc., for the different products of the company. This department manufactures four kinds of pattern equipment namely, thermecole, wodden, metallic and resin patterns. The pattern shop has got strength of nearly 100 people. It is having a machine shop with copy - milling facilities and other sophisticated wood working machines.

14. HEAT TREATMENT DEPARTMENT.

This department is equipped with modern heat treatment equipments. Some jobs require heat treatment. The jobs which require better mechanical properties, i.e., harden, tensile, strength, etc., are required to be heat - treated as per the job requirement.

15. CIVIL DEPARTMENT.

This department looks after roads, buildings, drainage, water supply of the factory. As per provisions

of Maharashtra State Prevention of Water Pollution, it has to give treatment to the waste water before its discharge. It is entrusted with new constructions as per requirements of the organisation.

16. INSPECTION DEPARTMENT.

This department has trained inspectors who ensure that the products are as per required quality. This department verifies that the production is as per drawing. This is very necessary for the reputation and success of the organisation.

17. SALES DEPARTMENT.

This department is responsible for sales of the organisation. Effective distribution is made possible by this department. The company insists on personal contacts between the company on the one hand and the distributors and the users on the other hand.

18. ACCOUNTS DEPARTMENT.

It looks after the accounting and costing affairs of the company.

19. PERSONNEL DEPARTMENT.

It maintains the records of the personnel employed in various departments. It takes care of their welfare. It has time office and welfare office.

- who is in charge of manpower planning
- Is't it critical to your study what is the point in describing the functions of all the departments

STATEMENT SHOWING THE SALES OF THE COMPANY

Year	Diesel Engines.		Plain Looms.		Automatic Looms.		Castings.	
	Numbers	Rs. In Lakh.	Numbers	Rs. In Lakh.	Numbers.	Rs. In Lakh.	M.T.	Rs. In Lakh.
1974-75	12,798	421.33	542	35.09	121	26.08	1,550	90.64
1975-76	6,824	266.54	328	24.87	1	00.38	1,686	106.40
1976-77	7,878	302.45	285	18.48	4	1.34	1,565	101.43
1977-78	2,908	146.02	616	40.52	--	--	616	42.64
1978-79	4,572	302.19	683	49.85	--	--	1,166	87.92
1979-80	3,440	474.31	74	5.87	1	00.22	1,318	119.16
1980-81	4,050	632.59	80	7.30	--	--	1,587	114.46
1981-82	4,175	721.58	--	--	--	--	1,358	142.82
1982-83	1,421	266.29	--	--	--	--	2,560	212.58

A. CO-OPERATIVE CREDIT SOCIETY.

In July, 1947 the employees' co-operative credit society of Engine and Foundry Division of Satara Road was established. The aim of establishing the co-operative credit society is to provide maximum loan to the members to meet their expenses of various nature at minimum rate of interest and to save them from clutches of the moneylenders.

The society gives loans to the employees for the following purposes :-

1. To meet the educational expenses of himself or any other member of the family.
2. To meet medical expenses of himself or any other member of his family.
3. To meet marriage expenses of his daughter or son.
4. To pay life insurance premium.
5. Any other purpose decided by Managing Committee.

B. E D U C A T I O N.

In order to provide adequate education facilities to the children of the employees, the

company runs a school from Montesory to H.S.C. with technical wing. The name of the school is Cooper English School.

C. H O U S I N G.

The company has provided nearly 26 acres of land for the quarters of the workers. Nearly 400 workers are provided with well built houses. Managerial personnel are also provided with upto date houses. The company has also contributed 25% of the construction costs of Maharashtra Housing Board at Motichandnagar, Satara Road. The workers residing in Maharashtra Housing Board Colony have established societies of their own namely, Motichandnagar Housing Society No. 1 and No. 2 under the guidance and assistance of the company.

D. H O S P I T A L.

The company runs a hospital in the colony of the workers to provide health services to the employees and their family members. It is equipped with necessary instruments.

E. C O - O P E R A T I V E S T O R E S.

The co-operative society runs a co-operative stores in order to make available scarce goods and necessary goods such as foodgrains, cloth, note-books

at concessional rates.

F. M E S S.

The company also runs a mess. Good quality food is served to the workers at the nominal rates. Tea and other eatables are served at nominal rates.

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