

A BACKBONE OF DEFENCE: HISTORY OF HINDUSTAN AERONAUTICAL LIMITED

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ABSTRACT

It was pressing need to have sound and strong defence oriented industry to enable military forces to protect India from external aggression. Such industry should be capable to design and manufacture essentials for sustaining air power, aeronautics and its allied industries. India should be able to manufacture and build indigenously latest avionics and armament. Considering past experiences of confrontation with neighbors in early seventies it has become compelling to produce sophisticated weapons, aircrafts and their accessories. At present whatever defence support India is getting from abroad may be suspended or stopped due to changing international situation and India should have her options. Keeping this view in mind India cannot wholly depend on foreign countries for defence assistance. Hence to avoid this India should endeavour to become self-reliant

KEY WORDS: *Indian Air Force. Defence, Hindustan Aeronautical Limited*

In case of aviation history of India indomitable pioneer *Seth Walchand Hirachand* will always be acknowledged for his extraordinary vision of establishing a defence oriented industry *Seth Walchand* represented a generation which has witnessed the emergence of aviation in the UK, the USA and other European countries around 1917-20 following *Wright brothers* epoch making flight for the first time on 17th December 1903. During the formative years of aviation in 1909 *Louis Bleriot* had crossed the English Channel in an aeroplane fitted with 34 HP engine.

In India this concept of mechanically propelled aero-vehicle was very new. In 1915, a Royal Flying Corps squadron (No. 31), was brought first time in the country by British Government, and in 1921 Royal Air Force (British) squadron was brought to India. The aircrafts of this type were mainly flown in the North-West Frontier Provinces on military assignments. Having first been introduced in the NWFP in October 1928, the Westland Wapiti IIA (M/s Westland) served with the RIAF in India for 14 years. In 1933, it became foundation upon which the

present air arm of the subcontinent was built. Flight 'A' of number 1 Squadron had the honour of flying the first operational mission in 1937 from *Miranshah* in north *Waziristan*. "**On 7th August 1940, 'B' flight of number 1 squadron IAF, based at Miranshah, was operating in the Daur Valley in support of land forces and in the face of intense hostile ground fire.**" During outbreak of Second World War. Four 'Coast Defence Flights' was formed which operated the Wapiti till 1942. That time years, there were no aerodromes in any other part of India save those at Lahore, Risalpur, Peshawar, Dardoni, Kohat and Quetta. Gradually civil flying clubs came into existence in major cities by 1929. During 1928-32 the *Late Mr. Neville-Vincent* and *J.R.D. Tata* the pioneers of civil aviation in India made a modest beginning in the field of air transport. Around this period only *Seth Walchand Hirachand* an Indian pioneer of Karnataka State entered in the business of civil aviation. The Air Services India Limited was formed in 1936. This new airline company witnessed many vicissitudes and achieved a grand success. Firstly it played a leading role by carrying nearly 75% of the total

airline passengers in India. Secondly this new company opened an additional door of employment. It is very essential to mention here that credit goes to Air Services for setting up of Training School for Aeronautical Engineers. For establishing Training school, and for its first extraordinary contribution, Seth Walchand Hirachand named *among top 25 Indians of century, under "Creator of Wealth" category and top 100 Indians of century* (Times of India, 4 Dec 1999) in overall tally. The idea of creator of wealth category was to include the architects of modern India. In short entrepreneurs and innovators, who set the wheels of progress in motion.

FIRST PHASE OF THE HAL DEVELOPMENT

With the outbreak of World War II, Air services enforced to suspend their operations temporarily and absorbed in the war effort. In December 1941, Japanese attacked Pearl-Harbour then the forces of the British India also joined the war with allied forces and it was used as a major operational airbase by the United States Air Force. These events led to the establishment of the Hindustan Aircraft Limited. Seth Walchand Hirachand had foresight to visualise India's freedom and wit to conquer the sky. The starting of Aircraft manufacturing company in private sector by Seth Walchand became a corner stone for further development of India's civil aviation industry. This civil aviation industry started to play a supporting role to the Indian Air Force.

The Hindustan Aircraft Limited was founded in association with the princely state of Mysore on December 23, 1940 with the object of *"Manufacturing aircraft, airships, sea-planes, balloons and accessories for the Indian market* (Dhekney, p233) "In the beginning company's manufacturing unit was founded on the Agram plains in Bangalore. It was a landing strip for few aircrafts, which were in use in India Messers Walchand Tutsidas Khatau were the managing agents of Hindustan Aircraft Limited with an authorized capital of Rs 4 crores. The company commenced its business with the assembly of Curtis, Hawk and Piston engine Harlow Trainers with the

Inter Continental Aircraft Company of the USA. Within the seven months of the commissioning of the factory on July 17, 1941, the first Harlow Trainer underwent a successful flight test. In March 1941 the Government of India joined the Hindustan Aircraft Ltd, as a shareholder. Having regard to the logistics and maintenance imperatives required to support allied forces operating in eastern sector during the World War II, then Government of India took over the management of company in June 1942.

As the war escalated, Hindustan Aircraft Limited geared up its activities from designing and manufacturing to overhauling and repairing of fighters, bombers and transport aircrafts to support the war efforts of Allied Forces. During 1942-45 over 1200 different varieties of aircrafts and 3800 piston engines of aircrafts such as Fortress, Liberator, Mitchell, Bombers, Dakota and Commando, Transport aircraft Catalina, Amphibians aircraft and piston engines fitted to these aircrafts were overhauled by Hindustan Aircraft Limited. So during war period, it became a major overhauling base for South East Asia Command of Allied Forces. When the World War II was over, the management of this organization reverted to the Government of India and then government owned the company, which embarked a joint programme of refurbishment of the surplus Dakota and Liberator aircraft for Royal Indian Air Force as well as Dakotas of civil airlines. Hindustan Aircraft Limited also took-up the responsibility of reconditioning Tiger Mouth trainers and Hawker Tempest fighter for Indian Air Force.

SECOND PHASE OF THE HAL

A programme of bodybuilding of aircraft and manufacturing of rail coaches was also undertaken to provide work to large forces that were rendered surplus. Later on this Job was transferred to Bharat Earth Mover Limited (BEML). With this transfer and following the advent of independence on August 15, 1947 the Hindustan Aircraft Limited entered in the second phase of its growth and development. The company commenced its operations with the design and manufacture of aircraft. In April 1948,

Government of India recommended license production of aircraft to this company. This gave to company a new lease of life and exposed it to the technologies of foreign collaboration. To have control on such type of industries Indian Government passed the Industrial Policy Resolution in 1948. Under this IPR the industries were divided in three categories and as on that date following number of industries were included in the respective schedule.

Schedule 'A'	- 17
Schedule 'B'	-42
Schedule 'C'	-Others

The UK entered into license agreement with Percival Aircraft Limited in 1948 for the manufacture of trainer aircraft in India. This agreement benefited the British Government as well as Indian Government. On the other hand in the middle of 1950 the Indian Government entered into license agreement with M/S De-Haviland Vampire FB-52 aircraft at Bangalore. It was first jet fighter to be inducted in Indian Air Force. The design capabilities of Vampire assiduously built by this company, won the appreciation and approbation of the nation. ***"The Vampire FB-52 aircrafts received in December 1950 were the first fighter jets in Asia.(Timesof India, 4 Feb 1992)"*** Its first bomber squadron was formed by resurrecting 50 Liberator (B- 24) bombers (M/s Dassault Ouragan) from 100 odd aircrafts condemned in the bombers graveyard at Kanpur. ***"it was August 5, 1951, when the first test flight of the HT-2 a trainer aircraft was successfully completed in Bangalore.(Dhekney,1990)"*** This is all metal conventional aircraft having two seat tandem arrangement with full aerobatics system. It was designed and manufactured indigenously under leadership of Dr V. M. Ghatge. He was the first Indian who designed number of aircrafts and established basic infrastructure for the design and development activities of the HAL. This success ushered in the ability of company to design and develop its own aircraft in India. The HT-2

continued as ab-initio pilot training by IAF. It has also given subsequent push to produce Marut, Kiran, Pushpak, and Gnat aircraft and helicopter like Allouette. It has also given boost to aero-engines, avionics and other related hardware, a major design and development programme was started for HF-24 (Marut aircraft). This was a transonic jet fighter with an Orpheus engine designed and developed by a team of German and Indian designers led by late Dr Kurt Tank. In September 1956 Government entered into an agreement with Folland for the manufacture of Gnat aircraft and Orpheus engines. In 1960 Hindustan Aircraft Limited embarked on the design and development of HJT-16 (Kiran) a jet trainer aircraft under the leadership of pioneer Dr V. M. Ghatge, who later on was elevated to the membership of the board as member. In May 1959 the engine factory at Bangalore was set-up for manufacturing Orpheus and Dart engines.

EXISTENCE OF HINDUSTAN AERONAUTICS LIMITED

Along with license agreement, new divisions were also coming up. In January 1960 an Aircraft manufacturing Depot (AMD) was established at Kanpur as an Air Force Unit for manufacturing of Hawker-Siddeley - 748 twin engine, turbo-prop transport aircraft. The Department of Defence ran it During period of 1956-63 over 1000 aircrafts such as Mitchell, Bombers, Liberator, Dakota and erstwhile Commando etc. was overhauled by then Hindustan Aircraft Limited. After China war company undertook reconditioning and conversion of surplus Dakota aircraft for use of Air Force and civil operators. Company also extended its service to IAF by re-conditioning of Tiger Moths (trainer), Hawker Tempest (Fighter) and Liberator (Bombers) Aeronautics India Limited was set-up by the Government of India to manufacture and overhaul MiG-21 frontline interceptor aircrafts in collaboration with the USSR. For this purpose factories were set up at Nasik for Airframes, Koraput for Engines and Hyderabad for Avionics. Subsequently an agreement was also signed with M/s SNIAS of France for license production of Chetak and Cheetah helicopters. When the Government has promulgated the aircraft companies

by an amalgamation order issued by Company's Law Board then on 1st June 1964, the Hindustan Aircraft Limited was merged with the Aeronautics India Limited. On 1st October 1964 Hindustan Aeronautics Limited was formed by combining both the companies. After facing the disaster of Indo-China war, and establishing when Hindustan Aeronautics Limited (HAL), it undertook an important task of:

- i. Manufacturing of Marut MK-I (HF-24) and Kiran (HJT-16) aircrafts.
- ii. Manufacturing of HS-748 in collaboration with M/s Hawker-Siddley Aviation Limited.
- iii. Manufacturing of MiG aircraft, engines and electronic equipment with the Soviet collaboration.
- iv. Manufacturing of Allouette - III helicopters in collaboration with M/s SNIAS.
- v. Manufacturing of Dart - 531 engines in collaboration with M/s Rolls Royce Limited of the UK.
- vi. Manufacturing of Artouste III-B engines in collaboration with M/s Turbomeca.

On 1st January 1965 Rail Coach Factory was separated by presidential order as a public limited company and merged with Bharat Heavy Earth Movers Limited. Earlier it was part of erstwhile Hindustan Aircraft Limited. During late 1950s and up to mid 90's the ongoing collaborative agreement with the USSR was extended to include the manufacture and overhaul of successors of MIG variants, viz. MiG-21, MIG-21, M MiG-21 BIS and MiG-27. In February 1973 a new factory for production aircraft accessories was set up at Lucknow, and after a decade in February 1983 the Late P.M. *Smt. Indira Gandhi* laid the foundation stone of another factory at Korwa to manufacture Advanced Navigation and Attack Systems.

The Hindustan Aeronautics Limited at present has twelve factories located in six different states. Five of these factories including the unit at Barrackpore constitute the Bangalore Complex Two factories at Koraput and Nasik comprise MiG

Complex, three factories at Hyderabad, Lucknow and Korwa are known as Accessories Complex. The Kanpur division directly reports to the Director Corporate Planning at Corporate Office. These factories are employing approximately 40,000 highly skilled workers.

The Hindustan Aeronautics Limited is the largest aeronautics, manufacturing establishment among the developing nations, and now its name is among top security units of world. A report published in Business World magazine says that London based magazine "Top Guns" held HAL in top defence enterprises of world. This report was given by International Defence Research Review IDR -93 II was based on supply of items to defence forces by different countries. The International Defence Research Review IDR-93 is an organization, which is concerned with security and vigilance.

In 1971 HAL had appointed a committee to review the total functioning of the company. The committee was known as "Review Committee of HAL". This Committee was consisted of Senior Directors. The main aim of this Committee was to check the drawback of industrial culture, self-appraisal and self-regulation. The committee reviewed the roles and objectives of the company and restructured them. Since the approval of corporate plan by Board of Directors, in 19 the restructured roles and objectives defined. These roles are as explained below.

ROLE OF HAL

- i. To serve as key base for national policy to achieve self-reliance in design development manufacturing and production of latest sophisticated aircraft fitted with latest weapons and aeronautical equipments to meet the worlds fast changing and growing needs with special emphasis on requirement of our Indian Armed Forces.
- ii. To conduct its business effectively and efficiently in the field of India's economy so that it should be able to supply products to its customers at minimum costs and at the same time contributing its share to the

- national efforts to achieve self-reliant and self-generating economy.
- iii. To develop and maintain organization, which will readily respond to and adopt the changing matrix of socio-techno-economic relationship. It will also improve climate of growing professional competence and self-discipline. Each employee will be encouraged to grow in accordance with his potential for the furtherance of the organizational goals.

Consistent with the basic objectives of the company the personnel department of the corporate office should adopt certain specific objectives. These objectives will act as a source of inspiration and guidance for growth and development of employees and to ensure their deep commitment for the company. According to David C. McClelland *"a strong drive for achievement is an important attribute for motivation and the quality which characterizes outstanding leaders.*(Macclland,1962,p21)

OBJECTIVES OF HAL

As there can't be one objective of any company, in same way HAL is also not having single objective. Peter Drucker cleared about fallacy of single objective, *"much of today's lively discussion of management by objective is concerned with the search for the one right objective. This search is not only likely to be as unproductive as the quest for the philosopher's stone, it does harm and misdirect. To manage a business is to balance a variety of needs and goals and this requires multiple objective.*(Management, 1975,p100)"

The main objectives of HAL can be defined as below:

- i. To increase production capacity, improve quality and to reduce production cost and rejection rate.
- ii. To gain, a real growth of 5% per year per employee.
- iii. To increase total sales the extent of 10% especially in the field of aerospace.

- iv. To utilize available resources and potential to improve design and development for achieving self-reliance.
- v. To promote indigenization of forging and casting materials up to the extent of 5% of the total imported value per year.
- vi. To improve the quality of personnel through training and development to increase its productivity progressively thus enabling it to achieve other objectives.
- vii. To reduce the average of rejection rate of the division 5% per year.
- viii. To render prompt and efficient product support.

SPECIFIC OBJECTIVES OF THE COMPANY

Besides the above objectives, the company also has specific objectives as given below:

- i. Ensuring quality of personnel at all levels and provide them suitable work environment, so that they can work up to satisfactory mark and face the professional challenge.
- ii. Ensuring employment for adequate numbers of personnel and avoiding surplus manpower.
- iii. Motivating employees, to increase their efficiency.
- iv. Identifying the personnel for specific skilled jobs and responsibilities.
- v. Progressively introducing participatory management.
- vi. Ensuring uniformity mainly in service conditions and welfare activities to boost the morale of the employees.
- vii. Maintaining effective communication and harmonious relationship at all levels.

It is a fact that sets role goals and targets achieved in some of the fields. Its turnover has been on the rise steadily. Recently on 12th July 1997 a Business Digest magazine of Mumbai edition's BT Bureau has given a report on highest safety on HAL's debt

programme. It says, ***“the 100 crore long term debt and Rs. 100 crore short term debt programme of HAL have been related, LAAA and AT (Highest Safety) ratings respectively by ICRA.”***

The ICRA states that the rating takes into account the strategic position of the HAL as only a domestic player for manufacturing and overhauling aircraft. It has given the existing order position and future defence requirements for new purchases and maintenance of its existing fleet.

“The HAL for the fiscal benefit on 31st March 1997, has achieved a turnover of Rs. 1725 crore i.e. 10% up from last year figure of Rs. 1567 crore. The company earned a profit of Rs 105 crore as against Rs. 86 crore in previous year, registering a healthy growth of 22%.(The Times of India)” During the year 1996-97 the HAL exported goods and services valuing Rs. 33 crore to fifteen countries. The HAL’s two joint ventures British Aerospace-HAL (BAe-HAL) and Indo-Russian Aviation Company Limited recorded profit of Rs 2.35 crore out of 8.09 crore and Rs 1 Crore out of Rs 5 crore for, nine months period respectively.

The words also came from a HAL representative in the on seminar of “Vision – 2000” as published in Business World Magazine.

“Our sights are set high of 'Vision - 2000', for which strategic plans have been drawn up and envisages an increase in the customer base from the present 20 Million to 50 Million by 2000 AD and 100 Million by 2005 AD. Our plan is to record a business level of Rs. 86000 crores and profit level of Rs. 1000 crores by the turn of century. We are technologically upgrading ourselves to transform into a highly competitive market oriented technological ISO-9001, dedicated to better

customer satisfaction and sound economic development. In the country and achieve excellence in International Aeronautical with commitment and innovations; our goal: Make every branch of the HAL, a meeting place of Aeronautical pleasure for every customer.”

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