

## CHAPTER III

### Transaction Audit Observations

#### Hindustan Aeronautics Limited

#### 3.1. Licence Production and Supply of Hawk Mk 132 AJT aircraft by Hindustan Aeronautics Limited

##### 3.1.1. Introduction

Government of India approved (October 1991) in principle the procurement of Advanced Jet Trainer (AJT) to train the pilots to fly advanced technology aircraft such as Sukhoi, Mirage, MiG 27 and Jaguar. HAL issued (February 1992) Request for Proposal (RFP) and Cabinet Committee on Political Affairs (CCPA) accorded (August 1993) approval for procurement of AJT. Based on the offers received, preliminary round of price negotiations were held with M/s British Aerospace (BAe) between December 1995 and February 1996 and M/s Dassault Aviation, France (DA) in February 1997. Since DA did not respond further, the price negotiations remained inconclusive. Fresh RFP was sent (June 1999) to M/s British Aerospace Systems (BAES) and DA by Air Headquarters to which BAES submitted (September 1999) their proposal while DA did not respond. A series of price negotiations were held with BAES and based on the negotiations, BAES submitted (March 2002) their final offer which was recommended to Government for approval. Cabinet Committee on Security (CCS) approved (September 2003) procurement of 24 BAe HAWK 115Y AJT Aircraft in flyaway condition and licence manufacture of 42 aircraft by Hindustan Aeronautics Limited (HAL).

The Memorandum of Understanding (MoU) between Government of India (GoI) and Government of Great Britain and Northern Ireland was signed on 19 March 2004 for supply of 24 Aircraft in flyaway condition and licence production of 42 Hawk aircraft, equipment and associated equipment and services by HAL. The contract (March 2004) for licence production of 42 aircraft included

- i. Licence Agreement with BAES for Transfer of Technology (ToT);

- ii. Purchase contract with BAES for supply of products, services and training in the United Kingdom and assembly of the Aircraft and Removable Role Equipment<sup>1</sup>, including Gun Pods, etc.;
- iii. Contract for services to HAL; and
- iv. Licence Agreement for production of Adour Mk 871-07 engine with Rolls Royce Turbomeca (RRTM).

MoD entrusted the execution of all the above contracts for these 42 aircraft to HAL and all payments to the Original Equipment Manufacturers (OEM) were routed through HAL and accordingly MoD entered (February 2005) into a contract for supply of 42 Hawk Mk 132 aircraft with HAL at a value of ₹ 1982.21 crore (Batch I contract). The cost included ₹ 1777.01 crore being the HAL component of licence manufacture (including ₹ 290.67 crore towards Capital Expenditure<sup>2</sup>, ₹ 305.03 crore towards Deferred Revenue Expenditure and

₹ 1181.31 crore towards other manufacturing cost at the rate of ₹ 28.13 crore per aircraft), ₹ 75.48 crore towards Customer Furnished Equipment (CFE) in respect of Direct Supply Aircraft and ₹ 129.72 crore for Supply of Spares and Test Equipment for detached operations, SACL items and supply, installation and commission of uninstalled engine test facility.

The above amount did not include ₹ 2581.37 crore being the amount paid by MoD as detailed below:

- ₹ 212.29 crore being the licence fee paid by MoD to BAES for Transfer of Technology to HAL;
- ₹ 2215.82 crore for Purchase contract with BAES for supply of products, services and training including Tooling and Test Equipment, for the manufacture and assembly of the Aircraft and Removable Role Equipment, including Gun Pods etc.;
- ₹ 92.02 crore for Contract for services (Technical Assistance in India for aircraft and engine as well as assistance in the modification of the Engine Test Facility (ETF) at HAL) to be rendered by BAES to HAL; and
- ₹ 61.24 crore being the licence fee paid by MoD to Rolls Royce for Transfer of Technology to HAL.

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<sup>1</sup>Removable Role Equipment means items of equipment which are carried on some flights, but not included in Empty weight and are not mandatory for the type of operation being conducted.

<sup>2</sup>₹ 41.00 crore towards Civil Works and ₹ 249.67 crore towards Plant & Machinery

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Thus, the total cost for 42 aircraft worked out to ₹ 4563.58 crore (₹ 108.66 crore per aircraft). The aircraft were to be delivered by HAL between 2007-08 and 2010-11. Against this, HAL delivered the aircraft between 2007-08 and 2012-13 i.e. with a delay ranging from 5 to 24 months.

The Licence manufacture at HAL of 42 aircraft was taken up in three phases as detailed below:

**Table 3.1 –Phases of Aircraft Manufacture**

<b>Phase</b>	<b>No of Aircraft</b>	<b>HAL participation</b>
I	3 (SKD) <sup>3</sup>	Installation of flaps, ailerons, wing tip fairings, manufacture of details parts and assemblies of defined assemblies (empennage, flaps, ailerons, airbrakes, engine bay doors and under carriage doors), fabrication of details parts and assemblies of Removable Role Equipment, installation of accessories in fin, coupled fuselage and final assembly, installation of equipment in fuselage, fabrication of detail parts and assemblies of Gun Pod, installation of wing and engine and final assembly activities, system checks (fuel, hydraulics, flight control, air pressurization etc.), Engine Ground Run (EGR), Flight Test and Acceptance (FAT) and delivery.
II	3 (CKD) <sup>4</sup>	Assembly of fuselage structure, wing structure, installation of flaps, ailerons, wing tip fairings, manufacture of details for canopy and wind screen, detail parts and assemblies for equipping, installation of equipment in Fin, wing, equipping and final assembly, manufacture of detail parts and assemblies of Defined assemblies (empennage, flaps, ailerons, airbrakes, engine bay doors and under carriage doors) and installation, manufacture of details parts and assemblies for Removable Role Equipment, detail parts and assemblies of Gun Pod, manufacture of detail parts and assemblies for installation in final assembly, system checks (fuel, hydraulics, flight control, air pressurization etc.), Engine Ground Run (EGR), Flight Test and Acceptance (FAT) and delivery
III	36 (Raw material)	Fabrication of detailed parts and assemblies for Airframe and installation kits, installation of accessories in fuselage and engine, fabrication of details parts and assemblies of gun pod and continuation of Phase I and II activities

While the Batch I was under execution, MoD entered (July 2010) into two contracts with HAL (Batch II contracts) for supply of 57 Hawk aircraft as detailed below:

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<sup>3</sup> SKD: Semi Knocked Down Kit

<sup>4</sup> CKD: Completely Knocked Down Kit

- 40 for Indian Air force at a cost of ₹ 6459.89 crore. The cost included ₹ 3920.00 crore for 40 aircraft (at the rate of ₹ 98.00 crore per aircraft), ₹ 12.40 crore towards Technical Publications, ₹ 332.80 crore for ten reserve engines, ₹ 105.32 crore for four engine modules, ₹ 1788.67 crore towards Spares and Services, ₹ 238.31 crore towards Licence Fee payable to BAES and ₹ 62.39 crore towards Royalty payable to RRTM. The aircraft were to be delivered between 2013-14 and 2016-17.
- 17 for Indian Navy at a cost of ₹ 3042.79 crore. The cost included ₹ 1666.00 crore for 17 aircraft (at the rate of ₹ 98.00 crore per aircraft), ₹ 5.27 crore towards Technical Publications, ₹ 166.40 crore for five reserve engines, ₹ 52.66 crore for two engine modules, ₹ 1017.92 crore towards Spares and Services, ₹ 2.06 crore towards Training on Engine, ₹ 101.28 crore towards Licence Fee payable to BAES and ₹ 31.20 crore towards Royalty payable to RRTM. The aircraft were to be delivered between 2013-14 and 2016-17.

HAL completed the delivery of the 57 aircraft in July 2016.

Consequent to the above contracts signed with Air Force and Navy, HAL entered (August 2010) into contracts with BAES for aircraft manufacture and with RRTM for engines for Batch II contract.

It was seen that HAL had supplied 42 Hawk aircraft of Batch I contract with delay ranging from 5 months to 24 months as detailed below:

**Table 3.2 – Details of Delivery of Batch I Aircraft**

Phase	No. to be supplied	Scheduled Delivery	Actual Delivery	Delay (in months)
<b>Batch I</b>				
I	01	March 2008	August 2008	5
	02	June 2008	March 2009	9
II	01	June 2008	June 2009	12
	02	September 2008	August 2009 October 2009	11 13
III	01	September 2008	February 2010	17
	03	December 2008	March 2010	15
	02	March 2009	March 2010	12
	03		September 2010	18
	04	June 2009	December 2010	18

<b>Phase</b>	<b>No. to be supplied</b>	<b>Scheduled Delivery</b>	<b>Actual Delivery</b>	<b>Delay (in months)</b>
	02		March 2011	21
	06	September 2009	March 2011	18
	01	December 2009	May 2011	17
	02		August 2011	20
	02		November 2011	23
	01		December 2011	24
	01		March 2010	January 2012
	02	February 2012		23
	03	March 2012		24
	02	June 2010	March 2012	21
	01		May 2012	23

The delay was attributed by HAL to delay in supply of technical documents, accessories & tooling by OEM and rectification of defective tools & jigs supplied.

All the 57 aircraft of Batch II were supplied between 2012-13 and 2016-17 without any delay.

During the review of licence manufacture in the two batches of aircraft by HAL, the following were noticed:

**3.1.2. Inadequacies in Supplies**

**3.1.2.1. Non-commissioning of Mission Planning Debriefing System**

Mission Planning Debriefing System (MPDS) is a debriefing tool for synthetic<sup>5</sup> as well as actual sorties. HAL supplied nine MPDS to IAF between April 2014 and February 2015 for the Batch II contract with 3 sets of software CDs. However, no associated manual/operating instructions were supplied and hence, the software could not be loaded on the systems. Due to non-availability of the system, there was no recording of the synthetic/actual flying sortie sessions of the rookie pilots. Thus, the trainees/instructors were deprived of the debriefing sessions which would enable the trainees to overcome the deficiencies/mistakes during the sorties. Audit also observed that there were compatibility issues between Batch I and Batch II MPDS.

Management stated (November 2016) that IAF formally accepted the MPDS in March 2016 based on the usage of the equipment though the commissioning was completed in April 2015. It further stated that to avoid use of different

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<sup>5</sup> Synthetic is a simulation system

standard of MPDS by IAF, HAL submitted (September 2016) a proposal for Free of Charge replacement of Batch I MPDS with Batch II MPDS as suggested by BAES and IAF response was awaited.

The reply confirms the fact that there were issues in the MPDS supplied and thus, IAF was deprived of the benefits accruing from the system.

**3.1.2.2. *Inability to record data relating to flying sorties due to VCR Loom cable fault***

Batch I of Hawk aircraft was fitted with Video Monitoring and Recording System (VMRS) for the purpose of debriefing the trainee pilots by their instructors. Breakage/discontinuity of VCR loom cable was noticed in six Aircraft due to stretching resulting in non-recording of the flying sorties for the purpose of debriefing of the trainee pilots by their instructors. BAES proposed (May 2013) a modification to introduce a sacrificial cable to reinstate the lost loom length which was to be carried out by HAL at their cost. Finally a Replacement Plan was proposed (October 2013) for upgradation of Batch I aircraft with Digital Monitoring and Recording System (DVMRS) system similar to Batch II.

Management stated (November 2016) that the design related issues were resolved by BAES as BAES had confirmed in August 2016 for submission of proposal to IAF for supply of DVMRS for Batch I contract.

The reply indicates that the issue was yet to be resolved as upgradation of DVMRS in Batch I aircraft was yet to be completed.

**3.1.2.3. *Fitment of Cat 'B' Line Replaceable Units (LRUs) on aircraft***

IAF requested (May 2009) HAL for diversion of Line Replaceable Units<sup>6</sup> (LRUs) in order to maintain serviceability of 24 Aircraft supplied directly by BAES. HAL diverted partial LRUs from additional five aircraft sets of 42 Hawk programme. Since IAF did not return Cat 'A' LRUs loaned by HAL, IAF agreed for fitment of Cat 'B' LRUs to deliver the last batch of production Aircraft. IAF also loaned (March 2012) three Aircraft to HAL for facilitating the fitment of Cat 'B' LRUs. HAL cannibalized the aircraft parts for meeting the production schedule of 2012-13. Audit observed that these three loaned Aircraft were signalled out in 2011-12 and hence, the loaned Aircraft were to be rebuilt as per the Standard Operating Procedure (SOP) and the rigors of

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<sup>6</sup>A line-replaceable unit (LRU), lower line-replaceable unit (LLRU), line-replaceable component (LRC), or line-replaceable item (LRI) is a modular component of an airplane, ship or spacecraft (or any other manufactured device) that is designed to be replaced quickly at an operating location

signalling out procedures had to be followed to return the loaned aircraft to IAF.

Five aircraft were signalled out (March 2013) by HAL to IAF for which Cat 'B' items were fitted. IAF specified to HAL that the aircraft invoice should exclude the cost of Cat 'B' LRUs and HAL could claim the same after replacement with Cat 'A' LRUs. Audit observed that Principal Controller of Defence Accounts (Paying Authority) withheld the balance five *per cent* payment of five aircraft amounting to ₹ 16.90 crore pending receipt of clarification from Air Head Quarters (AHQ).

Management while concurring (December 2015) with the audit observation stated that the matter was being pursued with AHQ.

The fact remains that due to non-returning of Cat 'A' LRUs by IAF, the funds of HAL were blocked with IAF due to delivery of five aircraft with Cat 'B' LRUs instead of Cat 'A' which had been done on the specific request of IAF itself.

#### ***3.1.2.4. Malfunctioning of High Pressure Fuel Pump***

Malfunctioning of high pressure fuel pump (June 2015) caused force landing of one Hawk aircraft. Investigations (August 2015) by RRTM revealed that the rubber diaphragm was split and the manufacturing defect could affect a number of new, overhauled (reconditioned) and repaired HP Fuel Pumps. Based on the investigations by BAES, RRTM issued a Non-Mod Service Bulletin (NMSB) instructing recall of all HP Pumps in the affected population before the next flight, if it had not completed 100 hours of exploitation. Out of 62 HP Fuel Pumps recalled by OEM, 60 Pumps were received by HAL and 52 were fitted on the engines. Thus there has been a non-compliance of the NMSB.

Management has not offered any remarks to the Audit observation.

#### ***3.1.3. Delay in establishment of facilities for Testing, Repair and Overhaul of Aircraft and Engines***

As a part of the contracts entered (March 2004) into with BAES, HAL was given exclusive rights to repair and overhaul of Hawk aircraft. The Total Technical Life (TTL) of the Hawk Mk 132 aircraft was 6000 hours and the aircraft was required to undergo major servicing after completion of 2000 flying hours/10 years whichever was earlier. Though the facilities were set up, there were delays in setting up the facilities which have been discussed in the succeeding paragraphs.

**Table 3.3 – Details of Establishment of Repair and Overhaul Facilities**

Sl. No.	Facility	Scheduled completion by	Actual completion
1	Repair and Overhaul (ROH) facilities for airframe LRUs	December 2012	March 2016
2	Establishment of facilities for major servicing of airframe	March 2016	Completed.
3	Establishment of facilities for engine overhaul	March 2018 (24 months from the date of sanction i.e. March 2016)	--

**3.1.3.1. Delay in handing over of site for construction**

The DPR for the licence build of Hawk aircraft envisaged that construction of Hangars and civil works for Hawk production would be ready by June 2006. HAL placed the work order for civil works (Construction of Apron, Roads, Drains and Compound wall) in June 2006 with scheduled completion by September 2007. However, HAL handed over the complete possession of site to the contractor only in February 2008 after a delay of 20 months. Delay in handing over of site led to payment of ₹ 3.50 crore to the contractor towards cost of escalation.

Management concurred with audit observation.

Thus, due to delay in handing over the site, the Company had to make extra payment of ₹ 3.50 crore to the contractor towards cost of escalation.

**3.1.3.2. Non-utilisation of Machines procured**

HAL placed (January 2006) order for one Bridge Cut Fixed Table Machine on M/s Le Creneau Industriel, France at a cost of Euro 8.05 lakh (₹ 4.42 crore) for routing the sheet metal components of Hawk aircraft. The machine was received in June 2007 but installed in the existing hangar during September 2007 as the new hangar was not ready. Further, HAL outsourced machining jobs of sheet metal components during 2007-09 by incurring an expenditure of ₹ 12.80 crore though the procured machine was installed.

HAL placed (December 2005) order for FET 600T Stretch Forming Press Machine on M/s ACB, France at a cost of Euro 22.80 lakh (₹ 13.00 crore) for machining various components of Hawk aircraft. The machine received in January 2007 was installed only in June 2007 in Aircraft Division as the building for the establishment of production facilities was not ready.

Management concurred with audit observation.

Thus, the basic purpose of procurement of machine was not achieved.

**3.1.3.3. *Delay in establishment of Testing and Repair Overhaul facilities for airframe LRUs at HAL***

Technical Project Report submitted (August 2000) by HAL and BAES as well as the Licence Agreement, Purchase and Service Contracts entered into with MoD envisaged establishment of Repair and Overhaul (ROH) facilities for Accessories at HAL. Out of 320 LRUs provided by BAES, 75 LRUs were non-repairable, Original Equipment Manufacturer (OEM) did not offer ToT for 5 LRUs, ToT for 5 LRUs were not considered viable and it was planned to establish ROH for 235 LRUs. GoI sanctioned (December 2009) ₹ 530.05 crore for establishment of facilities of which ₹ 521.62 crore was to be funded by MoD and balance ₹ 8.43 crore was to be funded by HAL. The facilities, which were to be established by December 2012, were established only by March 2016. HAL proposed (November 2012/June 2013) establishment of facilities for 9 additional LRUs (cost ₹ 32.47 crore) without any additional financial implications and also requested AHQ for extension of time up to November 2015. The proposal was yet (November 2016) to be approved by CCS. Due to failure to complete the facilities on time, MoD released only ₹ 186.32 crore out of ₹ 456.04 crore incurred by HAL up to June 2016.

It is pertinent to mention that 706 items of LRUs supplied by BAES during the period from December 2005 to September 2007 were rendered unserviceable during different stages of production. Of these, warranty of 348 items had expired and ten items were Beyond Economic Repair (BER). The defective items were sent to BAES for service and repair. HAL incurred ₹ 41.41 crore towards servicing, repair and return of warranty expired LRUs during the years 2010-11 and 2011-12. HAL also procured 323 LRUs rendered unserviceable at a cost of ₹ 75.47 crore. Delay in establishment of Testing and Repair & Overhaul facilities for LRUs resulted in the LRUs being sent to BAES and additional expenditure of ₹ 116.88 crore

Management attributed (November 2016) the delays to unanticipated technical and contractual issues encountered during signing/execution of contract, signing of the Integrity Pact by OEMs, delayed supplies from OEMs, Procedural delays in obtaining export licences by OEMs and stated that the same were beyond the control of HAL.

Due to delay in establishment of facilities, ROH of the first two aircraft inducted were undertaken in the existing facilities of overhaul division with technical assistance from BAES besides blocking of HAL's funds.

### **3.1.4. Other Issues**

#### **3.1.4.1. Avoidable payment of Licence fee to BAES/HAL for additional 57 Hawk Aircraft**

MoD paid BAES ₹ 212.29 crore (GBP 26.00 million) towards Licence Fee for Transfer of Technology for manufacture of 42 aircraft in accordance with Licence Agreement (March 2004). The purchase and licence agreement signed (August 2010) with BAES for manufacture of 57 aircraft stipulated payment of licence fee of GBP 37.80 million for exclusive right to manufacture and supply an unlimited number of aircraft, Removable Role Equipment and gun pods.

Contract Negotiation Committee (CNC) stated (January 2009) that the payment of licence fee again was not justified as licence fee was normally paid once although it was recognised that there was a specific limitation of numbers in the earlier contract. Based on CNC observations, the vendor agreed for the waiver of royalty but retained the licence fee.

BAES stated (September 2009) that they requested HAL to advise the number of aircraft so that they could quote the revised Licence Fee and since no response was received from HAL, the Licence Agreement made it clear that it was only for 42 aircraft.

It is pertinent to mention that Clause 4.5 of the Licence Agreement entered into by GoI with Rolls Royce Turbomeca Limited (RRTM) for production of Adour Mk 871-07 engine for the Hawk aircraft envisaged an amount of GBP 7.50 million towards licence fee for grant of licence to HAL for manufacture of engines to the extent GoI entrusts work to HAL. However, a similar clause was not included in the agreement with BAES resulting in payment of Licence Fee by HAL even for the additional contract.

Thus, failure to obtain manufacturing rights for unlimited number of aircraft, Removable Role Equipment and gun pods at the first instance resulted in payment of licence fee GBP 37.80 million (₹ 362.03 crore) for production of unlimited aircraft.

Management stated (November 2016) that Licence Fee paid to BAES through the contract dated 26 March 2004 was for production of only 42 aircraft and the contract was entrusted to HAL for implementation only.

The reply is not convincing since MoD failed to protect its interests as evident from contrary clauses in the two agreements entered with BAES and RRTM.

**3.1.4.2. Procurement of additional engine kits without any firm order – ₹107.05 crore**

HAL Board approved (February 2012) procurement of six additional engine kits comprising of raw materials, finished parts, consumables and accessories from RRTM at a value of ₹ 107.05 crore against production of engines in anticipation of order and accordingly Purchase Order was placed (March 2012) on RRTM under the Future support clause of Batch II contract in anticipation of order from MoD. These engine kits were received between October 2013 and January 2014 and have been lying in stores since then. As the order was yet to be received from MoD (January 2017), procurement of additional engine kits resulted in idle inventory and consequent blocking of ₹ 107.05 crore.

Management stated (November 2016) that additional six engine kits were procured to get price advantage by operating the price clause, it was a business decision to buy in anticipation of orders and the same would be utilized for future orders and benefits of escalation and ERV would compensate the inventory carrying cost.

The reply of the Management confirms the audit observation that the procurement was made without any firm order/Letter of Intent. Anticipated order was yet to materialize and thus, procurement resulted in blocking of funds of ₹ 107.05 crore for more than three years besides consequential loss of interest thereon.

**Conclusion**

Delay in delivery of aircraft to MoD due to delay in supply of technical documents, accessories & tooling by OEM and rectification of defective tools & jigs supplied resulted in delayed supply of Batch I aircraft. Not insisting for licence for manufacture of unlimited number of aircraft by MoD while negotiating for Batch I contract resulted in avoidable payment of licence fee for licenced manufacture of unlimited number of aircraft.

HAL also incurred expenditure of ₹ 107.05 crore on account of procurement of six additional engine kits in anticipation of order from MoD which remained infructuous. Though establishment of facilities for major servicing of airframe and engines was envisaged to be completed by March 2016 and March 2018 respectively, considering aircraft directly procured by MoD, HAL was yet to establish the facilities till date.

**Recommendations**

- *HAL may ensure that the supplies are effected completely so that the customer obtains the envisaged benefits from the product.*

- *HAL may procure required materials only on confirmed orders to avoid holding of idle inventory.*
- *HAL may prioritise establishment of facilities for repair and overhaul to ensure on time after sale service to the customers.*
- *MoD should ensure that licence fee for Transfer of Technology is obtained for unlimited number so as to avoid payment of the same in case of requirement of additional numbers in future.*

The matter was reported to Ministry (November 2016); their replies were awaited (March 2017).

## **Bharat Electronics Limited**

### **3.2. Injudicious decision of the company resulted in loss of ₹ 36.84 crore**

**Injudicious decision of Bharat Electronics Limited, to quote and enter into contract for establishment of Camp Area Network without considering the complexity of work involved and associated costs like Exchange Rate Variation, Warranty expenditure and impact of delay in supply, resulted in loss of ₹ 36.84 crore**

Indian Air Force (IAF) invited (March-April 2007) Expression of Interest (EoI) for “Establishment of Camp Area Network of IAF” (AIRCAN). The major components of the Network were Servers, Storage Devices, Computers, Wi-Max Radios, Video Conferencing Equipment, Kiosks, Software of Microsoft & Red Hat Linux and Oracle Database. As per the EoI,

- The estimated project value was around ₹ 100 crore;
- Authorization letter of only one Original Equipment Manufacturer (OEM) per component was required to be enclosed with the EoI;
- The payment terms were 50 *per cent* of total cost of contract after delivery of all deliverables, inspection and acceptance of all items at 49 bases, 40 *per cent* of total cost of contract after successful completion of installation, integration, training and handing over of the complete system and balance 10 *per cent* of total cost of contract on receipt of warranty bond valid for 39 months from the date of handing over of the complete system;
- Three years on-site warranty and Product Support Commitment for five years after warranty;

- Liquidated Damages (LD) at 0.5 *per cent* of the value of delayed items per week or part thereof subject to maximum of five *per cent* of the value of delayed stores.

Bharat Electronics Limited (BEL) submitted the authorization from IBM (Servers and Storage Devices), Acer (Desktop Computers), Maksat (Wi-Max Radios), Polycom (Video Conferencing Equipment), Tyco (Kiosks), Delta (Uninterrupted Power Supply (UPS)) and EPSON (Printers).

EoI was followed (September 2007) by Request for technical and commercial Proposal (RFP). Since it was a competitive bid (competition from M/s HCL Info Systems, M/s Wipro, M/s ITI, M/s CMC, M/s HP, etc.) and also considering the customer's budget, the Company decided (January 2008) to quote sub ₹ 100 crore. The Company also decided not to consider

- Foreign Exchange (FE) variation, since the dollar and the prices of IT products was having a declining trend and the reduction in prices of IT products were higher than the likely rise in dollar rate;
- LD, since Air Force would take atleast two to three months from the opening of the Commercial Bid to Contract Signing and this time would be utilised for advance action of procurement so that LD was not imposed;
- Additional Warranty Support cost, since back to back warranty support was asked from all vendors.

The Company's offer was accepted and the contract for supply, Installation and Commissioning (I&C) of hardware, software and Networking equipment at 49 bases for Camp Area Networking was awarded (March 2010) to BEL at a price of ₹ 99.49 crore with a delivery schedule of 32 weeks i.e., November 2010. BEL completed the contract by March 2013 after a delay of more than two years.

The following observations are made:

- (i) The items to be imported included Ruggedized Fiber (Optical Fiber Cable) which was to be imported from Switzerland. Though the item was to be imported from Switzerland, the Company did not consider the impact of variation of Swiss Franc while deciding not to consider the exchange rate in the quotation. Further, while the contract for supply of the items was signed with IAF in March 2010, Purchase Order (PO) for this item was placed only in April 2011 and item was received between March 2012 and June 2012. As against ₹ 15.29 crore considered in the quotation submitted to IAF based on the Swiss Franc exchange rate of ₹ 34.32, the total amount paid was ₹ 23.28 crore. As against the exchange rate of ₹ 34.32 considered in

the quotation, the actual exchange rate varied from ₹ 54.70 to ₹ 58.50. Failure of the Company in not considering the variation in exchange rate of Swiss Franc while submitting the offer and delayed placement of PO resulted in higher cost due to variation in exchange rate, which had to be absorbed.

- (ii) The actual cost incurred on the project was ₹ 117.78 crore (including Non-Manufacturing overhead (NMOH<sup>7</sup>)) against the contracted price of ₹ 99.49 crore thereby resulting in a loss of ₹ 18.30 crore. Thus, the decision of the Company to quote sub ₹ 100 crore without any cover for unforeseen expenditure was imprudent as the Company failed to safeguard its interests.
- (iii) There was a delay of 29 months and the customer deducted ₹ 5.45 crore towards liquidated damages. The Company did not consider the LD in the quote on the ground that time available between opening of the Commercial Bid and Contract Signing would be utilized for advance action of procurement. However, the Company did not adhere to this as evident from the delivery dates specified in the Purchase Orders (PO) placed on the vendors. Out of 24 POs placed on the vendors, delivery due dates were after the contract completion date of November 2010 in 11 POs. The Company recovered ₹ 1.51 crore towards LD from its vendors and had to absorb the balance LD of ₹ 3.94 crore.
- (iv) Additional Warranty Support cost was not considered in the quote since back to back warranty support was asked from all vendors. However, due to difference in timings of receipt of material by BEL and supply of these items to IAF, there was mismatch in warranty coverage period. While the warranty offered of the vendors to the Company was between December 2011 and January 2015, warranty for the supplies made by the Company to IAF was upto March 2016. Consequently, the Company incurred an expenditure of ₹ 14.60 crore towards Annual Maintenance Contract (AMC).

Management stated (August 2016) that

- (i) Since it was a multi tender RFP, the ERV was not applicable and hence change in ERV resulting in loss had to be absorbed. BEL bid was prepared taking into account fluctuations of FE related information at the time of bidding and the aim was to submit an aggressive

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<sup>7</sup>Non-Manufacturing overhead are the expenses relating to Corporate Office, General administration, canteen, medical, general R&D, expenses of respective Units, Marketing and selling expenses, and financing cost other than direct expenses. During 2012-13, NMOH considered for this project was 12.16 per cent of the Prime cost.

competitive bid to secure this prestigious project from the esteemed Defence customer.

- (ii) Keeping in view future business with the same customer and more importantly to venture into PAN India IT project, it was a strategic and conscious decision of the management to have a large IT project for Defence service customer in their profile and portfolio. Hence the risk taken was justified being a business decision. SBU had received an order worth ₹ 20 crore from Indian Army.
- (iii) At the time of signing of contract, BEL was confident of completing delivery without LD. The customer's decision of change of the Network architecture from distributed to centralized changed the entire scope for execution and implementation of e-form solution. The same resulted in delay in finalization of suitable solution provider. Though the delay is attributable to change in requirement by IAF (due to their operation/management related issues), the Company had to accept the same and additional loss of ₹ 5.45 crore towards LD had to be absorbed.
- (iv) After the expiry of back to back warranty with OEM/vendors, the project had to be supported till commencement of warranty period with IAF. Hence AMC order had to be placed on OEM/vendors to support the program and thus, the expenditure of ₹ 14.60 crore had to be absorbed.
- (v) As per the RFP/contract, scope of work was to develop e-forms. However post contract, customer wanted to run e-form over AFNET. Also integration of Wi-Max with AFNET was also initiated Post contract which involved field trials at various locations before finalizing the configuration and integration specs. This was a time taking activity and was done in 6-8 months.

The reply of the Company is not convincing in view of the following:

- As already stated above, the Company did not adhere with what it envisaged while submitting the quote. Further, BEL ventured into this project without proper assessment of the complexity of the work involved as it was aware of the requirement of materials, networking system and customization during RFP stage itself i.e. even prior to submission of the bid.
- Analysis of requirement and e-forms was required to be completed during tendering process itself. As implementation of AFNET was under progress even prior to its official inauguration (September 2010), the Company was aware of the same during the bidding process itself and hence, the reply that changes due to running e-form over AFNET

and integration of Wimax with AFNET was time consuming is not tenable.

Thus, the injudicious decision of BEL, to quote and enter into contract for establishment of Camp Area Network without considering the complexity of work involved and associated costs like Exchange Rate Variation, Warranty expenditure and impact of delay in supply, resulted in loss of ₹ 36.84<sup>8</sup> crore.

The matter was reported to Ministry (November 2016); their replies were awaited (March 2017).

**3.3. Development of Bharani Mark II in L-Band without customer requirement resulted in expenditure of ₹ 11.45 crore being rendered futile**

**Bharat Electronics Limited (BEL) proceeded to develop three Dimensional (3D) L Band radar without clearly ascertaining the specific requirement of customer. Since customer was keen on S band 3D Aslesha radar modified for meeting the Bharani Mk II requirements, decision to go for development of L band radar resulted in avoidable expenditure of ₹ 11.45 crore.**

A proposal for procurement of 38 Low Level Lightweight Radar (LLLR) Mark II (Bharani Mk II) under the “Buy Indian category” based on design of Defence Research and Development Organization (DRDO) from Bharat Electronics Limited (BEL) was forwarded (July 2012) by Ministry of Defence (MoD) to BEL for comments. The proposal was sent considering that Electronics & Radar Development Establishment (LRDE) had already developed LLLR which was under manufacture by BEL for supply to Army under the contract signed (March 2011) with MoD. While the LLLR Mk I radar was 2-Dimensional<sup>9</sup> L band radar, the proposed Bharani Mk II radar was envisaged as a 3-Dimensional<sup>10</sup> surveillance radar with better altitude capability and improved operational and performance characteristics.

The Board of Directors of BEL approved (April 2013) to develop one prototype of Bharani Mk II having features similar to S band Aslesha Radar at an estimated cost of ₹ 17.36 crore including capital investment and offer it for evaluation and field demonstration to user within a time frame of 18 months of approval. The radar envisaged to be developed was a L-Band 3D radar. The Board also advised the Management to sign a detailed Memorandum of

<sup>8</sup> ₹ 3.94 crore (net LD) + ₹ 18.30 crore (excess expenditure over sale price) + ₹ 14.60 crore (Warranty) = ₹ 36.84 crore.

<sup>9</sup> Provide details about Speed, Azimuth and Range of the targets.

<sup>10</sup> Determine Range, Azimuth, Range and Height of the targets.

Understanding (MoU) with LRDE since LRDE would be the system design agency for Bharani Mk II.

As per the timeline fixed by the Board, the Probable Date of Completion of Design, Develop, realize, integration, test and field the system for User Trial was October 2014. The progress in the project was delayed due to finalization of the design by LRDE and subsequently conducting the Preliminary Design Review with the user and BEL. In the meanwhile, LRDE informed (September 2014) BEL that during the Quarterly Interactive Meeting with Army Air Defence, the User showed keenness on S<sup>11</sup>-Band and an Aslesha radar modified for meeting the Bharani Mk II requirements was to be fielded for user evaluation by March 2015. Due to change of band, development of L-Band was kept on hold (November 2014) and a fresh sanction was accorded (March 2015) by the Chairman and Managing Director for development of S-Band radar at an estimated cost of ₹ 4.98 crore.

Audit observed that an expenditure to the tune of ₹ 11.45 crore (including inventory) was incurred on the development of L-Band radar till March 2016 as detailed below:

**Table 3.4 – Details of Expenditure incurred on Development of L-Band Radar**

<b>Item</b>	<b>Amount (₹ in crore)</b>
Material	4.13
Labour	0.10
Development & Engineering (D&E) cost	6.18
Overheads	0.35
Others	0.69
<b>Total</b>	<b>11.45</b>

As the development was put on hold, most of the above expenditure was rendered futile. Audit also observed that BEL did not adhere to the directions of the Board to sign a MoU with LRDE to ensure clarity to the project and commitment from LRDE.

Management stated (September 2016) that LRDE being the designated design agency, had proposed Bharani Mk-II using semi-active phased array technology in L-band. The change in frequency band necessitated design change. Out of the total expenditure of ₹ 11.45 crore, most of the money were utilized in new development/modification/ realization of S-Band version based on Aslesha Technology and common sub-systems could be utilized in 'S' band with minor modifications as well as additional procurement against other

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11 Short wave with 2 to 4 GHZ frequency

projects. Draft MoU with LRDE was prepared but due to change in band, MoU signing was put on hold.

Audit holds the view that as the requirement projected by the customer was for 3D radar, BEL, being the production agency, should have clearly ascertained the customer requirements regarding features and specifications before proceeding with the development based on the notion of what customer was asking for.

Thus, the decision of BEL to go for development of L band radar without clearly ascertaining the specific customer requirement as regards features and specifications lacked justification and resulted in a good part of expenditure of ₹ 11.45 crore being rendered futile.

The matter was reported to Ministry (September 2016); their replies were awaited (March 2017).

**3.4. Delay in supply of Low Intensity Conflict Electronic Warfare System resulted in loss of ₹ 47.46 crore besides levy of liquidated damages of ₹ 8.97 crore**

**Improper estimation of cost and delay in submission of proposals for amendment of contract resulted in delayed execution of the project and loss of ₹ 56.43 crore including Liquidated Damages of ₹ 8.97 crore**

Bharat Electronics Limited (the Company) received (August 2008) a Request For Proposal (RFP) from Ministry of Defence (MoD) for supply of one Low Intensity Conflict Electronic Warfare System<sup>12</sup> (LICEW). The Company submitted (February 2009) the techno commercial proposal in consortium with Electronics Corporation of India Limited<sup>13</sup> (ECIL), Hyderabad for ₹ 188.83 crore which included ₹ 16.53 crore towards Annual Maintenance Contract (AMC) and ₹ 1.26 crore towards installation charges. The work share of ECIL comprised of major assembly units viz., three units of Control Centre (CC), three units of Cellular Communication Interception Subsystem (CCIS) and six units of Radio Relay Repeater Stations (RRRS) along with Engineering Support (ES) package.

As against the cost of ₹ 91.02 crore submitted (February 2009) by ECIL (₹ 71.67 crore for major assembly units, ₹ 10.75 crore for ES package and ₹ 8.60 crore for AMC), the Company, while submitting (February 2009) the

<sup>12</sup>LICEW System is practical mobile ground based integrated system capable of efficient functioning in an open/ built up areas in Mountainous, Plains and Jungle terrain.

<sup>13</sup>ECIL is a Government of India Enterprise under Department of Atomic Energy.

commercial proposal to MoD, quoted ₹ 65.01 crore without obtaining the consent of ECIL. ECIL expressed (April 2012) its inability to accept the offer on the grounds that reduced prices were commercially not viable. Consequently, the Company decided (April 2012) to relieve ECIL from the commitment of execution of their work share and to execute the entire project independently.

The Company's bid was the lowest and MoD signed (July 2011) a contract for supply of one LICEW system at a total cost of ₹ 188.83 crore. As per the contract, the deliveries were to be completed within 18 months of signing the contract i.e. 11 January 2013.

The Company completed the Project in March 2015 after a delay of 26 months by incurring a cost of ₹ 218.42 crore against which the Company realized ₹ 170.96 crore resulting in a loss of ₹ 47.46 crore against the envisaged profit of ₹ 22.10 crore as detailed below:

**Table 3.5 – Details of Cost incurred by the Company on the Project**

(₹ in crore)

<b>Particulars</b>	<b>Estimated Cost</b>	<b>Actual incurred (including expenditure on installation)</b>	<b>Variance</b>
Material cost	135.16	188.01	52.85
Labour cost	5.77	26.13	20.36
D & E development cost	8.01	4.28	3.73
<b>Cost of Operation Goods/Services</b>	<b>148.94</b>	<b>218.42</b>	<b>69.48</b>
<b>Sales recognized as per contract</b>	<b>171.04</b>	<b>171.04</b>	
<b>Contribution (loss)</b>	<b>(+)22.10</b>	<b>(-)47.38</b>	

Thus, the total variation from the estimated cost was ₹ 69.48 crore. The Company attributed (November 2015) the major reasons for the project incurring loss to enhancement in material content (₹ 31.79 crore) and adverse exchange rate variation (₹ 18.79 crore). Further audit analysis brought out the following:

- i. The RFP was followed by No Cost No Commitment (NCNC) demonstration which was held in December 2009. During NCNC demonstration, the following major changes were proposed by MoD:

**Table 3.6 – Details of Major Changes proposed**

Sl. No.	Item	RFP Requirement	Modified Requirement	Impact (₹ in crore)
1.	SDBFS entity	To be put on Gypsy Vehicle	To be put on 2.5T Vehicle provided by Army	3.60
2.	M3TR Radio	In-house developed radio	To be imported from R&S Germany	8.67
3.	CCIS entity	16 duplex channel system	24 duplex channel system	6.57

The above changes were not considered while signing the contract. Consequently, the amount quoted by the Company in response to RFP remained unchanged in the contract though there were changes to the items in the RFP.

Besides, there was change of Original Equipment Manufacturers (OEM) in respect of the following major equipments post submission of offer by the Company:

**Table 3.7 – Details of Changes of OEM**

(₹ in crore)

Sl. No.	Item	Modification to RFP	Impact
1.	15 KVA Generator	Change of Vendor from M/s Cummins to M/s MAK Controls	3.32
2.	25 KVA Generator	Change of Vendor from M/s Cummins to M/s MAK Controls	2.08
3.	V/UHF Exciter	Change of Vendor from M/s Microwave Electronic System to M/s Pragati Micro	0.08

Failure to ensure the requirements of the customer at the time of signing the contract (July 2011) but after submitting the quote (February 2009) resulted in additional expenditure due to change in equipment/OEM effected by the customer post submission of the quote.

- ii. As per clause 36.1 of the Contract, Exchange Rate Variation (ERV) would apply on the foreign content. Clause 36.3 of the contract stipulated that ERV clause would not be applicable in case delivery period for imported content were subsequently extended/re-fixed. As brought out above,

amendments due to change of Original Equipment Manufacturers (OEM), change of specifications, change of name of the dealer, change in address of the OEM, etc. were to be approved by MoD. The Company initiated the process of amendment in November 2012 but submitted the final proposal with full justification and supporting documents only in May 2013 i.e. almost four months after the expiry of delivery schedule (11 January 2013). The amendment due to change of OEM was approved by MoD in October 2013. Further, MoD issued three amendments (September 2013, June 2014 and March 2015) extending the delivery schedule upto 31 March 2015 with levy of Liquidated Damages (LD). Due to delay in submitting proposals for issue of amendments by MoD, the Company could not place orders for imported materials. As the amendments were approved after the lapse of stipulated delivery period, ERV on supplies received after the stipulated delivery period had to be borne by the Company. As against ₹ 94.75 crore being the value of Purchase Orders (POs) placed (October 2011 to September 2013) for imported contents based on the exchange rate specified in the contract, actual payment in respect of these POs was ₹ 113.54 crore resulting in the Company having to absorb the difference of ₹ 18.79 crore.

- iii. The work of ECIL was completed by the Company at a cost of ₹ 65.09 crore as against the quoted rate of ₹ 69.56 crore. However, delay in obtaining amendments for changes in OEM, specifications, etc. contributed to delay in delivery. MoD levied LD of ₹ 8.97 crore for the delayed supplies as the extension in delivery schedule was with levy of LD.

As a result, the Company had to incur a loss of ₹ 56.43 crore due to execution of this project.

Management stated (May 2015) in reply that

- i) As per Procurement Policy the bidder was not allowed to negotiate the technical requirements at the time of signing the contract and had to meet certain operational requirements not being part of RFP. Conscious decision was taken in view of anticipated repeated orders and forthcoming major Electronic Warfare (EW) programs.
- ii) Although the project incurred loss, immense technical knowledge was gained by executing the project which included development and that the efforts of waiver of LD were in vain because of global bidding.

The reply of the Company is not convincing as the requirement of the customer should have been ascertained during pre-bid stage and items not included in the RFP should have been discussed during the Contract

Negotiation Committee (CNC) meetings before signing of the contract. While not contesting the fact that the Company gained technical knowledge by executing the project, Audit contends that execution of the project without even recovering the material cost was not in the best interest of the Company.

Thus, due to improper estimation of cost and delay in submission of proposals for amendment of contract resulted in delayed execution of the project and consequently, the Company incurred a loss of ₹ 47.46 crore besides LD of ₹ 8.97 crore.

The matter was reported to Ministry (December 2016); their replies were awaited (March 2017).

## **BEML Limited**

### **3.5. Avoidable loss of ₹ 9.56 crore due to delay in erection and commissioning of Walking Dragline**

**BEML Limited delayed commissioning of walking dragline and suffered consequent avoidable loss of ₹ 9.56 crore by way of Liquidated Damages.**

Northern Coalfields Limited, (NCL) placed (September 2009) a Supply Order on BEML Limited (BEML) for supply of one BEML- Bucyrus W2000(33/72) Walking Dragline along with accessories and consumables at a total cost of ₹ 184.48 crore. As per the Supply Order,

- The equipment alongwith Accessories was to be delivered within 22 months on FOR Destination basis from the date of registration of contract with Customs authority.
- Failure to deliver the equipment within the stipulated delivery schedule would render BEML liable for Liquidated Damages (LD) at the rate of 0.5 *per cent* of the cost of equipment not supplied for each week or part of a week subject to a maximum of 10 *per cent*.
- BEML was responsible for the erection and commissioning within 18 months of receipt of complete equipment at site. In case of failure to commission the equipment within the stipulated period, further LD would be recovered at 0.5 *per cent* of the delivered price of the equipment alongwith the accessories per week or part thereof subject to a maximum of 5 *per cent*.

BEML placed a Purchase Order (January 2010) on M/s. Bucyrus International Inc., USA (BUCYRUS) (later renamed Caterpillar Global Mining LLC-

CGM<sup>14</sup>) for supply of one set of Completely Knocked Down (CKD) kit required for Walking Dragline W2000(33/72) with three years' guaranteed spares at a total cost of USD 2.39 crore (₹ 110.11 crore at ₹ 46.00 per USD). Further, as per the Technical and Component Supply Agreement entered (September 1998) into between BEML and BUCYRUS, BUCYRUS would render technical guidance and advise including after-sales to BEML at cost of BEML. The agreement, initially valid for five years was further extended through an amendment for further ten years from September 2004.

BEML supplied the equipment within stipulated time in September 2011 and thus, erection and commissioning was to be completed within 18 months from actual date of delivery i.e. by March 2013 in accordance with the Supply Order. The erection and commissioning was completed only in January 2015 i.e. after a delay of 22 months. NCL recovered (March 2015) ₹ 9.56 crore for delay in erection and commissioning of the Dragline towards LD.

As the Supply Order specified that delay in erection and commissioning of the Dragline would attract LD at the rate of 0.5 *per cent* of the cost of the delivered equipment per week, BEML should have ensured the erection and commissioning of the Dragline within the time stipulated in the Supply Order. Non-commissioning of the Dragline within time led to an avoidable payment of LD of ₹ 9.56 crore.

Management replied (November 2016) that:

- i. Walking Dragline of 33x72 Size was manufactured by BEML for the first time. Though skills acquired by BEML over years helped in producing the equipment, special skills required in welding the structures took time to develop.
- ii. Erection activity got delayed primarily due to customer handing over unprepared erection site.
- iii. As regards recovery of LD (₹ 9.56 crore), all out efforts were made by BEML to pursue with the NCL for refund of the amount deducted.

The reply is not convincing as

- i. BEML had not stated in its offer regarding handing over of levelled/prepared site and thus, cannot attribute the delay to NCL.
- ii. The request of BEML has not been considered by NCL and NCL refused to accept the leveling of the site area as the reason for delay since dozers, crane and other equipment were provided to BEML site-in-charge without any delay. NCL also highlighted deployment of

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<sup>14</sup>Caterpillar Inc acquired M/s. Bucyrus International Inc in July 2011

insufficient and inexperienced manpower, payment issues to the labour for which they had gone on strike on few occasions, delay in boom preparation work and technical issues relating to gap between two shafts. Further, as seen from the correspondence with BUCYRUS, BUCYRUS had expressed their apprehensions regarding non-adherence of quality specification, wrong/sub-standard material usage, untrained manpower and welding & supplier Quality Assurance as these were stated to have been ignored by BEML.

Thus, BEML delayed commissioning of walking dragline and suffered consequent avoidable loss of ₹ 9.56 crore by way of LD.

The matter was reported to Ministry (November 2016); their replies were awaited (March 2017).

### **3.6. Idle investment due to procurement of machine without ensuring required infrastructure**

**Procurement of machine without ensuring required infrastructure resulted in idle investment of ₹ 13.15 crore. Further, the vision of BEML Limited to enter into aviation design, manufacturing and services remained unachieved.**

BEML Limited (BEML) diversified into aerospace business by establishing (February 2009) a dedicated Aerospace Manufacturing Division at Mysore complex. The Division was to embark upon entering into aviation design, manufacturing and services. The Board of Directors of BEML approved (May 2010) capital investment of ₹ 104.13 crore and acquisition of 25 acres of land in Special Economic Zone, Bengaluru (SEZ) at an estimated cost of ₹ 40.00 crore to set up additional manufacturing facilities. As the cost of land increased, the Board approved (November 2010) investment of additional amount of ₹ 9.56 crore being the differential amount of the cost of land.

BEML took possession of 25 acres of land in Bangalore Aerospace Software Export Zone Park (BASEZP) from The Karnataka Industrial Areas Development Board (KIADB) on 26 April 2011 after payment of ₹ 49.50 crore.

BEML also placed (May 2012) an order on M/s ACB, France (ACB) for supply of one Elastoform Press machine at a cost of EURO 11.70 lakh (₹ 8.19 crore at ₹ 70 per Euro). The machine was to be delivered within 11 months from the date of issue of order and Letter of Credit (LC). Installation and commissioning of the equipment was to be completed within six weeks from

the date of receipt. LC was established on 27 July 2012 and the order was accepted by ACB on 1 August 2012.

Audit observed that the contract for Pre-engineered Building (PEB) systems for industrial facility (March 2012) and Civil Works contract (April 2012) at the BASEZP were awarded to M/s URC Constructions Private Limited (URC) at a cost of ₹ 34.72 crore and ₹ 38.43 crore respectively. As per the contracts, work of PEB was to commence from 5 March 2012 and completed by 24 June 2012 while the civil works were to commence on 16 April 2012 and completed by 15 October 2012.

The PEB contract included construction of MRO Hangar and Composite Hangar. As per the industry standard, such pre-engineered tailor made designs were to be vetted by third party certification. However, this was not done by URC despite clear provisions in the contract and hence, URC was not allowed to carry on the work. URC served (October 2012) notice of arbitration invoking the arbitration clause in the contract. The arbitrator pronounced (August 2016) the award and the same has been challenged by URC in City Civil Court, Bengaluru. Final decision of the Court was awaited (November 2016).

As the civil work was stopped, BEML requested (January 2013) ACB to hold the equipment and delay the delivery as the infrastructure facilities were not ready. ACB stated (January 2013) that the machine was unique, customised as per the requirement and could not be diverted to another customer. The machine, procured at a cost of ₹ 10.24 crore was diverted and installed (May 2015) at Mysore and as a consequence, BEML had to pay ₹ 2.43 crore towards customs duty which was exempt had the machine been installed in SEZ.

Audit contends that the decision of BEML to open LC for Elastoform Press machine on 27 July 2012 was hasty since the contracts for PEB and Civil work awarded in March 2012 and April 2012 respectively were yet to commence owing to non-compliance to contract conditions by the contractor. As the order was accepted by ACB on 1 August 2012, BEML could not back out from the commitment after refusal by ACB to delay the supply of the machine. Further, the machine procured at a cost of ₹ 12.67 crore remained idle as it could not be put to use for want of sufficient orders/infrastructure. A team from M/s Hindustan Aeronautics Limited (HAL) (a Public Sector Undertaking under the Ministry of Defence involved in production of aircraft) visited (May 2015) BEML's Mysore division to carry out capability assessment for the manufacture of sheet metal components. The team concluded that Conventional Routing facility and Heat Treatment facility which were mandatory for fabrication of sheet metal components were not available.

BEML also incurred ₹ 0.34 crore towards Project Consultancy Services and ₹ 0.14 crore towards maintenance of machine. Due to non-utilisation of the machine, the entire investment/expenditure of ₹ 13.15 crore was rendered idle/infructuous.

BEML stated (August 2016) that the required facilities would be established at ASD, Mysore on approval of capital budget 2016-17. Further it was replied that discussions were on hand with Rosoboronexport (ROE, Russian Helicopters Corp) to set-up facilities for manufacture of aviation hoses and KNEI8 Avionics and on finalisation of business terms JV/Collaboration agreement will be entered into.

The reply of BEML indicated the lack of urgency to complete the facilities and the investments were initiated without proper planning. It also confirmed that there was no progress (August 2016) in offset program for aerospace business opportunities.

Thus, procurement of machine without ensuring required infrastructure resulted in idle investment of ₹ 13.15 crore. Further, the vision of BEML to enter into aviation design, manufacturing and services remained unachieved.

The matter was reported to Ministry (September 2016); their replies were awaited (March 2017).

### **Garden Reach Shipbuilders & Engineers Limited**

#### **3.7. Excess expenditure on purchase of Advanced Composite Communication System from BEL for Landing Craft Utility project**

**Failure of Garden Reach Shipbuilders & Engineers Limited in taking up the proposal for modification as prescribed in the contract resulted in extra expenditure of ₹ 12.74 crore.**

Ministry of Defence (MoD), Government of India entered into (September 2011) a contract with Garden Reach Shipbuilders & Engineers Limited, Kolkata (GRSE) for construction and delivery of eight Landing Craft Utility Mk IV Vessels (LCU MK-IV). Clause 37.1 of the Contract stipulated that during the progress of work, should either of the parties propose any modifications or alterations and additions to the approved drawings or any changes to the specifications, the parties should raise appropriate modification forms as per Annexure V of the Contract. Clause 37.3.1 stated that GRSE should forward the details of the proposed modification indicating the time and cost implications to MoD at the earliest but not exceeding six weeks. Clause 37.5 of the Contract prescribed that in the event that any of the materials required by the specifications could not be procured/not delivered by

the nominated supplier or were in short supply, GRSE may supply other material capable of meeting the requirements provided that MoD agrees in writing.

LCU included Advanced Composite Communication System (ACCS) and the nominated vendors were M/s Bharat Electronics Limited (BEL), M/s Electronics Corporation of India Limited (ECIL) and M/s Tata Power SED, Mumbai. As per Statement of Requirement (SOR) prepared (November 2011) by GRSE for ACCS, model PAE 3060 was considered for V/UHF trans-receiver, which was one of the components of ACCS. The estimated cost of ACCS at ₹ 54.26 crore was based on the quote received from BEL in October 2010 considering PAE 3060 model V/UHF trans-receiver. GRSE invited (December 2011) tenders from BEL, ECIL and Tata Power for supply of ACCS. In the pre-bid meeting (December 2011) between GRSE, ECIL and BEL to discuss the technical issues, BEL offered to supply latest version of model M7 V/UHF trans-receiver in ACCS instead of model PAE 3060 V/UHF trans-receiver due to obsolescence. Offer was received (January 2012) only from BEL who had quoted ₹ 89.30 crore which was subsequently revised (July 2012) to ₹ 93.20 crore. GRSE held technical/commercial negotiations with BEL between August 2012 and May 2013 and placed (July 2013) orders for eight ACCS systems at ₹ 67.00 crore after negotiations.

GRSE sought (April 2013) compensation from Integrated Headquarters (Navy) (IHQ (N)) for the differential cost for providing the latest PAE M7 V/UHF trans-receiver in ACCS. IHQ(N), while not agreeing to the claim, stated (April 2013) that the procurement of ACCS as per build specification/approved technical specification was the contractual liability of GRSE and IHQ had not sought change in the technical specification of the ACCS system submitted by OEM. Therefore, escalation of project cost on this account in respect of fixed price contract was not viable.

Audit contends that GRSE failed to adhere to the provisions of the contract in submitting the proposals for modifications. While BEL offered to supply latest version of model M7 V/UHF trans-receiver in place of Model PAE 3060 V/UHF trans-receiver in December 2011 itself and GRSE was aware of the significant difference between the prices of two models in July 2012 consequent on opening of BEL's price bids, GRSE should have immediately taken up with MoD for modification of the item in terms of the contract. Failure of GRSE in taking up the proposal for modification as prescribed in the contract resulted in extra expenditure of ₹ 12.74 crore<sup>15</sup>.

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<sup>15</sup> ₹67.00 crore – ₹54.26 crore

GRSE replied (November 2016) that though the budgetary quote was for PAE 3060 model, the price bid was for PAE-M7 model which was technologically more advanced version as model PAE 3060 was discontinued by ECIL. The negotiated price was 23 per cent more than the estimate. Considering the gap of more than 2 ½ years from budgetary quote validity date (March 2011) till placement of order (July 2013), the normal price escalation came to 14 per cent and balance 9 per cent could be attributable to advanced specifications/features. Further, it stated that the matter regarding the increased cost of ACCS due to upgraded model and other factors were brought to the notice of the customer representatives on multiple occasions. As IHQ(N) did not agree to the reimbursement of increase in price, GRSE had to proceed with bearing the extra cost to avoid delays in delivery of materials which have ultimately impacted the project timelines.

The reply is not convincing since GRSE should have taken up the proposal for modification indicating time and cost implication with the MoD within the timeframe as per the terms of the contract.

Thus, failure of GRSE in taking up the proposal for modification as prescribed in the contract resulted in extra expenditure of ₹ 12.74 crore.

The matter was reported to Ministry (December 2016); their replies were awaited (March 2017).

## **Vignyan Industries Limited**

### **3.8. Avoidable loss due to abnormal rejections of steel castings**

**Failure to carry out effective quality checks before okaying the goods for delivery to customers resulted in a loss of ₹ 2.77 crore by way of customer rejections during the last five years period ending 2015-16.**

Vignyan Industries Limited (VIL), a subsidiary of M/s BEML Limited (BEML) is Steel Casting Foundry. VIL specialises in manufacturing components for Earth Moving Machinery, Valves, Die Casting Machines, Ropeways and Automobiles. VIL was a Captive Foundry to BEML alone till 2015-16 and now it has extended its supplies to important customers like HMT, BHEL, KCPL, HML, and Indian Railways. VIL has also diversified its production into Ductile Iron Castings. VIL also received an order from M/s. Midhani for supply of 100 MT U2 grade steel castings during 2015-16.

The main raw material used in the manufacture of castings is iron and steel scrap which is melted in furnaces and the liquid metal obtained is poured into moulds to get castings of required specifications.

The details of sales of the Company, sales made to holding Company and rejections thereon during the period from 2011-12 to 2015-16 are furnished below:

**Table 3.8 – Details of Sales and Rejections****(₹ in crore)**

<b>Particulars</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>
Sales (in MT)	3608.00	2181.00	2725.00	2210.00	2285.00
Rejections (in MT)	239.00	133.00	74.00	48.00	94.00
Percentage of Rejections to Sales	6.62	6.10	2.72	2.17	4.11
Allowable Rejections (at 1.5 per cent) (in MT)	54.12	32.72	40.88	33.15	34.28
Excess Rejections (in MT)	184.88	100.29	33.13	14.85	59.73
Cost per MT (in ₹)	99,970.00	96370.00	1,01,360.00	1,11,340.00	1,03,160.00
Value of Excess Rejections (₹ in crore)	1.85	0.97	0.34	0.16	0.62
Less: Rejected Materials purchased by VIL at a rate of ₹30,000.00 per MT and reprocessed (₹ in crore)	0.55	0.30	0.10	0.04	0.18
Value of Rejections after allowing for Scrap (₹ in crore)	1.30	0.67	0.24	0.12	0.44

As could be seen from the above, customer rejections ranged from 2.17 per cent to 6.62 per cent and was above the industry norm of 1.5 per cent in all the five years from 2011-12 to 2015-16. The rejected castings are re-melted for producing new castings. The total value of rejections over and above the industry norm after allowing for reprocessing worked out to ₹ 2.77 crore.

Loss due to abnormal rejections was pointed out in Report No. 12 of the Comptroller & Auditor General of India for the year 2006. In response, the BEML had stated (January 2007) that Magnaflex Detector machine was supplied (October 2006) by BEML for detecting minute defects and to bring down the rejections. Ministry had further stated that rejections were steadily coming down ever since VIL took corrective action and the Ministry had further advised VIL to bring down the rejections within the industry norms. However, no effective corrective measures were taken as promised by the

Management/Ministry as evident from the loss being more than the industry norm even after nine years.

Management replied (November 2016) that:

- a) The manufacturing process, machinery and technology at VIL remained the same since last 10 years. The technology and manufacturing process are largely manual and less automated leading to manual errors and rejections more than the best automated steel foundries. Hence the automated industrial norm of 1.5 *per cent* may not be feasible for VIL conditions.
- b) VIL procured and installed (September 2009) Fast Loop Molding System for ₹ 8.95 crore and because of this the rejections has come down from 6.62 *per cent* during 2011-12 to 4.11 *per cent* during 2015-16.
- c) During 2016-17, VIL has taken up repair, reconditioning and procurement action to increase the quantity of production, to get standard quality of products and to avoid production loss in case of rain. Board approval has been taken for modernization and up gradation of existing machinery in a planned manner (most critical facilities directly having likely impact on the quality of castings) during the year 2016-17 and 2017-18.

The reply is not convincing due to the following:

Rejections at customer's end should be minimum and a rejection of upto 6.62 *per cent* indicates laxity in quality control mechanism. Old machinery or manufacturing process might lead to excessive internal rejections but rejections by customers have nothing to do with old machinery/manufacturing process. These reflect that VIL neither cares to value its own credibility/goodwill nor does it show sense of commitment towards its customers.

VIL needs to investigate how the defective goods could be cleared for delivery to the customers and take action against the persons responsible for such carelessness. VIL also need to study how the customers could detect those deficiencies and should strengthen the pre-delivery quality checks.

Thus, failure to carry out effective quality checks before okaying the goods for delivery to customers resulted in a loss of ₹ 2.77 crore by way of customer rejections during the last five years period ending 2015-16.

The matter was reported to Ministry (November 2016); their replies were awaited (March 2017).