**Agile Electric**

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In this case the recall/field failure and associated costs should be charged to Automek because they were already aware of the risks involved with outsourcing to get a better price. Sure, they had previous success from working with Agile Electrics, but they were also aware that Agile Electrics was not experienced in assembling and supplying the critical part, the actuator. They passed responsibilities down the supply chain, and lost sight of what the product was going through until problems arose. Additionally, Automek had previously sent engineers to monitor and help with the assembly of past products with Agile, but they said they would not be able to for this project due to tight financial situations.

Automek’s decision to source from Agile was not a good one because they put their business with OEM (Ford) at risk. They knew Agile was not experienced with making the actuator, and Agile, themselves, had to source for supplies needed for the actuator.

Agile did not make the right decision in accepting the contract because they hurt their reputation with OEM and Automek. Agile had their goal of $10 Million in revenue by 2010 in mind, but Arun Rao, Agile’s development head, confirmed that they had no experience in manufacturing the actuator for Automek, and he was not for supplying it from the get go. Agile had already been making assumptions about Automek’s help with the assembly. Suresh Kumar, Vice President of Operations at Agile Electric, said Automek promised to support them in locating and developing the sub tier suppliers so they don’t need to worry about it. He added they will not use resources to manage the sub suppliers. With the lack of experience and assumptions of Automek’s help, this product was set up for failure.

Stakeholders:

* Suresh Kumar- Vice President of Operations at Agile Electric
* Raj Reddy- Chief Executive Officer at Agile Electric
* Gajendran Srinivas- Agile’s chief financial officer
* Arun Rao- Agile’s Development Head
* Agile Electric-
  + Subsidiary of Agile Japan in the mid 990s for the development, production, and sale of electric motors and their parts.
  + Located in CHennai, the southern part of India.
  + Supplies Motors to domestic and overseas automotive customers
  + Had multiple divisions for electrical, sheet metal, and plastic parts.
  + QS 9000 Standards- implies that the company would have a certain minimum level of quality systems.
  + Implemented a few of the best practices in manufacturing in its operations, such as, workplace organization, dashboards, and visual management, which were incorporated in the lines of Toyota Production Systems.
  + Sales turnover reached $56.2 Million in 2007m and was expected to grow at 5% annually for 2 years.
* Automek Inc. - Key Customer of Agile
  + Large multinational auto component manufacturer HQ’ed in North America with plants all over the world
  + Supplied complete systems to many car manufacturers globally and had annual turnover in excess of $10 billion.
  + This was the first project with OEM (Ford)
  + They need it to succeed to get more business from OEM
  + Automek was looking to outsource due to rising costs of US manufacturing.
  + It was aware of risks, but felt no other option.
  + Came across Agile in India
  + Sent technical team to Agile to inspect and came back satisfied and approved it as a supplier of motors to Automek
* Ford - Key Customer of Automek...referred to as OEM (Ford)
* Tom Smith- Supplier Quality manager at Automek
* John Arthur- Purchasing Manager
* Electronic Components Private Limited (ECPL)- an electronic parts manufacturer and an existing supplier to agile.
* Boards India Private Limited (BIPL)- Supplier of ECPL- Local manufacturing company that provided PCBs. ISO 9000
* James Roach- SMT Process expert

Problem:

* Failure on the field caused by parts supplied by Agile.
* This was the 2nd failure, OEM (Ford) was considering recalling cars from the market.
* Automek said OEM will charge it for the costs, which will in turn charge Agile.
* Agile must confirm within 48 hours to Automek that a robust containment plan was in place and that an initial root cause analysis of the problem had been done.

Automek’s Sourcing Decision

* Tom Smith talked to John Arthur about sourcing the new actuator assembly from Agile, and Arthur wanted Smiths concurrence
  + Smith asked Arthur how they could go with Agile to manufacture this critical product when they have no experience.
  + Arthur responded with reassuring Smith that Agile is one of the most successful overseas suppliers. 70 Parts Per Million defects and no delivery defaults in the last 3 years.
  + Arthur was sure that that Agile would be able to successfully develop the part
  + Agile will make the part for $7.20 per part
  + U.S. will cost $16 per part
  + Smith Asked if Engineers would be able to help with this part, but Arthur said that there won’t be because of financial situation.

Agile Order Acceptance

* If they took Automek’s order they would be at $10 Million by 2010.
* Arun Rao, Agile;s Development Head, raised a concern that its project and operations team had NO experience in developing and manufacturing this assembly. WANTS COMPANY to REJECT ORDER FROM AUTOMEK
* Kumar was insistent that they would be able to deliver on this one.
* Kumar says that Automek is a top 3 customer and that they have trust in Agile’s ability
* Rao raised concern about the bought out parts- they have no idea where to get them from.
* Kumar said Automek promised to support them in locating and developing the sub tier suppliers so they don’t need to worry about it. He added they will NOT use resources to manage the sub suppliers.

The Product

* The actuator assembly produced by Agile was a non-contact magnetic sensor that sensed the existing position (angle) of the throttle valve, compared it with its desired position and, based on the differential, sent the signal to the motor for actuation. This valve position determined the amount of fuel in the fuel and air mixture in the engine. A rich mixture resulted in higher power generation and thus higher acceleration.
* Agiles Inputs
  + PCB
    - Resistors
    - Capacitors
    - Integrate Circuits
  + Injection Moulded Plastic Parts

Needed

* PCB board
* Capacitator/resistor
* IC

- 5 critical part supplier/sub-supplier to Agile for producing the actuator assembly

Problem was that if the operator made such an error that partially damaged any part on the PCB assembly, there was a chance that it would go undetected during testing at Agile and could malfunction in the field.

- ECPL was an existing supplier to Agile, but parts didn’t go through SMT process. Agile proposed ECPL as a supplier to for the PCB assembly to Automek

-Automek team audited ECPL and found gaps in its quality systems, but they had all the necessary equipment to manufacture the PCB so they gave them to go ahead to assemble it.

-Automek also asked Agile to work with the ECPL in closing the gaps observed during its visit and provide regular updates to Automek on the process

- ECPL was a local company to Agile

- ECPL mgmt was reluctant because they had no experience in supplying product directly to high quality North American automotive market.

-It was also not aware of the sources for the critical components such as resistors, capacitators, and ICs required to produce this part.

- Agile Assured ECPL that Automek promised they would provide support in this activity and the supply components that were from oversea suppliers.

- ECPL would have to source the PCB, which was from a local supplier.

- ECPL agreed to continue business with Agile and Automek and assumed that Agile and Automek would take care of any issues that arose from overseas suppliers.

- ECPL suggested that BIPL provide the PCBs for ECPL. Automek agreed because BIPL had an ISO 9000.

-BIPL observed that ECPL’s PCB was much smaller than its existing product range.

-BIPL agreed to supply because of the big names involved in the supply chain

- They thought that having OEM and Automek on its list of customers could possibly give a boost to its export business.

Manufacturing Process for PCB Assembly at ECPL

* The PCB assembly consisted of a number of supplied parts such as the PCB board being supplied by BIPL, and electrical components such as resistors, capacitors, inductors and ICs
* PCB assembly was inspected and tested in 3 stages
  + Visual Checks using different levels of magnification
  + Static Test for the components
  + Dynamic test to verify the connectivity of the assembly
  + Automek deputed engineers to BIPL and came up with action list based on the gaps observed during the assessment.
  + Automek asked Agile to work with BIPL on closing gaps before the start of supply while also working with it on developing the PCB

Start of Supplies

* Capacitor problem
  + In September 2008 OEM reported a failure in one of its cars that originated from the actuator assembled by Agile.
  + OEM wanted a response from Automek concerning the failure, and Automek in turn asked Agile about the problem.
  + While Agile was still working on the problem, OEM reported another similar failure in the first week.
  + The second problem also originated from the actuator assembled by Agile.
  + OEM and Automek were concerned that the continuous failure of the actuator would lead to heavy warranty costs and product recalls.
  + Agile was asked to speed up investigation and report root cause of the problem.
  + It was also asked to locate exactly when the problem had started so that the defective parts could be quantified, contained and prevented from reaching any customers in the future
  + Agiles investigation revealed that the failure had occurred due to a faulty capacitor manufacturer in North American Supplier
  + Agiles initial thought that since Automek recommended the North American supplier, they had no control over the matter and was not responsible for the problem.
  + A month later OEM asked Automek to suspend supplies of its product until resolved problem with Agile and Capacitor supplier.
  + Agile asked support from Automek to pursue the case with the capacitor problem.
  + Automek was not responding, but took up the matter with the capacitator supplier through a routine follow-up.
  + The supplier insisted that the product was fine until it reached ECPL
  + The problem then shifted to ECPL, since it conducted capacitor assembly
* High Resistance Problem