

Update on investigation into improper quality control practices and implementation of reform roadmap (First Report)

October 1, 2021

Mitsubishi Electric Corporation

- Mitsubishi Electric Corporation today announces the findings of the report by an Investigative Committee of external experts (Chaired by Hiroshi Kimeda, Partner (Attorney-at-law), Nishimura & Asahi, announced on July 2, 2021) into the non-compliance of third-party certification of electromagnetic switches manufactured by the company's Kani Plant of Nagoya Works (Kani City, Gifu Prefecture, announced on May 7 and July 21) and the improper inspection practices of HVAC and other products for railcars manufactured at Nagasaki Works (Togitsu Town, Nishisonogi District, Nagasaki Prefecture, announced on June 30), as part of the investigation it has been tasked with in relation to incidents involving quality-related improper practice of Mitsubishi Electric. Mitsubishi Electric takes the Investigative Report seriously and after deeply reflecting on the findings, at today's Board of Directors Meeting, the Board discussed and approved the company's plan for reform as well as three areas of reform (quality assurance, organizational culture and governance) including measures to prevent recurrence.
- The investigation into quality practices at all of the company's manufacturing sites and plants (all 22 facilities) will continue, and the company will report accordingly roughly every three months on the findings of the investigation and progress and developments regarding the steps the company is taking. The company aims for the investigation to be completed by April 2022 and will then proceed with investigations into its group companies. As a result, today's announcement is the first report regarding the investigation results of Kani Plant, Nagoya Works and Nagasaki Works and the company's roadmap for reform based on these findings. Investigations into the company's manufacturing facilities and plants will continue. Mitsubishi Electric will implement and further develop its three areas of reform including measures to prevent recurrence, taking those future investigation results into account.
- Mitsubishi Electric would like to reiterate its sincere apologies to all customers, valued stakeholders, and broader society for the impact of these incidents. The company takes the findings and recommendations of the report very seriously and is committing to work as one Mitsubishi Electric Group to both prevent future recurrence and on reform so that the company can regain trust.

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1. Overview of the Investigative Committee's report and Mitsubishi Electric's response

- We have received a total of 6 reports of improper quality practices at Kani Plant of the Nagoya Works, including 2 that have already been announced, and a total of 12 reports of improper quality practices at Nagasaki Works, including 8 that have already been announced.

Kani Plant of Nagoya Works

- Incident ① was reported on May 7. Incident ③ was reported on July 21. Incidents ② was discovered through subsequent investigations.
- For Incidents ①, ② and ③, it has been confirmed that discrepancies were hidden through the presentation of false diagrams etc. during regular UL inspections (FUS: Follow-Up Service).

	Incidents of improper practice	Overview and number of units shipped	Mitsubishi Electric's response
1	For some parts of electromagnetic switchgear (T series) resin material was used which was different from that certified by UL. (Announced on May 7)	In some model parts (tangential carriers), different resin material was used from that which was originally certified and registered by UL. Shipping period/number of units: January 2013 - April 26, 2021 Total approximately 2.19 million units	As an immediate countermeasure, all production and shipments of these products were stopped. UL certification was revoked on May 15 this year, and production was resumed on May 18 for products without UL certification.
2	Inconsistency of electromagnetic switchgear (N Series*) with UL certification *This is the old model of T series and production is currently stopped (except for certain models)	In the past, some subcontracted factories used materials that were not registered with UL. Shipping period: 1994 - 2016 (Some of the models are still in production)	The company started correcting the inconsistencies with UL certification from around 2008. Even though all corrections had not been completed, the production of the N series was stopped (except for some models) together with the launch of the T series in 2012. In early August, the company made a request to UL for model changes, as it was discovered that there were inconsistencies with UL certification resulting from errors and missed revisions in some models in the N series that are still being produced.
3	For manual motor starters, material was used which was different from what was originally certified and registered by UL. (Announced on July 21)	In some parts, material other than those registered under UL certification were used. Shipping period/number of units: April 2013-April 2021 Total 140,000 units	After the UL certification of parts used in this product was removed, the production and shipping of the UL certified products were stopped before the discrepancy noted in the left column was discovered. Currently, products are manufactured without the UL certification label.

*In addition to the incidents listed in the table above, three other cases are mentioned in the footnote of the Investigative Committee Report: issues relating to part of shipment inspections not being conducted for some models of electromagnetic contactors, discrepancies in the labeling method for classification based on operating time of thermal relays with JIS standards, and discrepancies in the open circuit voltage values of some models of electromagnetic contactors with JIS standards.

1. Overview of the Investigative Committee's report and Mitsubishi Electric's response

Nagasaki Works - HVAC (Heating, Ventilation and Air Conditioning systems) for railcars

- Incidents ① - ⑤, ⑦ and ⑨ were reported on June 30. Part of Incident ④ and Incidents ⑥ and ⑧ were discovered in subsequent investigations.
- In each of the incidents, there were improper inspection records created. For the cooling capacity test and cooling power consumption tests, it was confirmed that programs were created and used to automatically produce inspection records of the commercial tests.

	Incidents of improper practice	Overview and number of units shipped	Mitsubishi Electric's response
1	Commercial test: Cooling capacity test and cooling power consumption test (Announced on June 30)	Test was not conducted under the temperature conditions of JIS E 6602, but under the normal factory temperature. Number of units shipped: 73,986 units/93 customers	As soon as the improper practices were discovered, the shipment of the relevant products was stopped. The test method has been revised to comply with the specifications required under contracts with customers as well as the JIS Standards and the shipment has been resumed.
2	Commercial test: Heating capacity test and heating power consumption test (Announced on June 30)	Test was not conducted under the temperature conditions specified in contracts, but under the normal factory temperature, or was not conducted at all. Number of units shipped: 8,621 units/5 customers	For incidents that had already been announced before the most recent investigation, the company is having discussions with its customers separately regarding products that had already been shipped. As for the incidents that have been discovered by the most recent investigation, the company will begin reaching out to its customers shortly.
3	Commercial test: Waterproof test (Announced on June 30)	The company substituted the sprinkling test for finished products specified in JIS E 6602 with other test methods including a watertight box frame test. Number of units shipped: 69,522 units/93 customers	
4	Commercial test: Insulation resistance test and voltage resistance test (Partially announced on June 30)	Part of the insulation resistance test and voltage resistance test specified in JIS E 6602 or contracts was not conducted. Number of units shipped: 8,863 units/11 customers	
5	Commercial testing: Shape and dimension inspection (Announced on June 30)	The shape and dimension inspection specified in contracts was not conducted. Number of units shipped: 65,659 units/93 customers	

1. Overview of the Investigative Committee's report and Mitsubishi Electric's response

	Incidents of improper practice	Overview and number of units shipped	Mitsubishi Electric's response
6	Development performance testing: Cooling capability test	<p>(a) Even if the result was 95% or higher but less than 100% of the rated cooling capability*, the product was determined to have passed. Number of units shipped: 17,121 units/52 customers * The pass/fail threshold was changed to 100% or higher in 2011 from between 95% and 100%. * Even in cases where the product was determined to have cooling capability between 95~100% when tested against the median range of temperature and humidity conditions specified by JIS E 6602, it has been later shown that these products had 100% or higher rated capability within the engineering tolerance range of temperature and humidity conditions under JIS specifications.</p> <p>(b) Cooling capacity and some of the parameters used as the basis for calculating the cooling capability in inspection reports were different from the actual figures. Number of units shipped: 355 units/1 customer</p>	<p>As soon as the improper practices were discovered, the shipment of the relevant products was stopped. The test method has been revised to comply with the specifications required under contracts with customers as well as the JIS Standards and the shipment has been resumed.</p> <p>For incidents that had already been announced before the most recent investigation, the company is having discussions with its customers separately regarding products that had already been shipped.</p> <p>As for the incidents that have been discovered by the most recent investigation, the company will begin reaching out to its customers shortly.</p>
7	Development performance testing: Cooling overload test (Announced on June 30, 2021)	Cooling overload test specified in JIS E 6602 was not conducted. Number of units shipped: 18,860 units/56 customers	
8	Development performance testing: low temperature cooling test	Test results determined by a shorter operating time than specified in JIS E 6602. Number of units shipped: 18,860 units/56 customers	
9	Development performance testing: Vibration test (Announced on June 30)	The company substituted accelerated vibration measurement results with the vibration test specified in JIS E 4031. Number of units shipped: 18,860 units/56 customers	

* The number of units shipped in the table above is the maximum possible number and the company has not been able to confirm whether compliance with the JIS Standards was specified in each contract.

* In addition to the incidents listed in the table above, two other incidents are mentioned in the footnote of the Investigative Committee Report: partially not conducting tests in accordance with JIS E 5006 and insulation resistance and voltage resistance tests that were conducted under conditions different from those specified in contracts.

Nagasaki Works - Air Compressors for railcars

- Incident ① was reported on June 30.

	Incidents of improper practice	Overview and number of units shipped	Mitsubishi Electric's response
1	Development performance test: use of the test results for the old model for the new model (Announced on June 30)	In the development performance test on the new model, the test results for the old model were used without customers' approval. Number of units shipped: 1,002 units/18 customers	Following the provision in JRIS E 5002, the company has revised a policy that when test results for old models are used, it will ensure that customers' approval is obtained along with a technical explanation. <u>*The use of test results for old models is allowed under JRIS E 5002 (subject to customers' approval), which was established in 2013.</u>

Nagasaki Works - Other findings

The report confirms that no improper quality practices had taken place with regard to the platform doors and video information systems manufactured by the Facility Systems Department of Nagasaki Works.

- The report outlines both direct and underlying causes of the incidents at Nagasaki Works and Kani Plant as well as eight recommendations based on these findings.

Direct causes

- The concept of thorough quality assurance through adherence with specified protocols (for example, appropriate quality inspections in strict adherence with the standard to ensure that the product complies with the standard) was not deeply ingrained among employees, as there were cases of justification based on the mentality that “there is no problem as long as there is no actual quality issue”.
- The Corporate Quality Management Department, which was supposed to play a control function, lacked independence due to being under the control of the manufacturing department. It also lacked sufficient resources in both quality and quantity.
- Middle management (especially section chiefs who are close to the manufacturing sites) was extremely busy and could not act as an intersection between the manufacturing sites and the management.
- There was a disconnect between the head office/corporate function departments* and the manufacturing sites (the manufacturing sites did not think that head office/corporate function departments would support the manufacturing sites and work together with them to solve problems).

Underlying causes

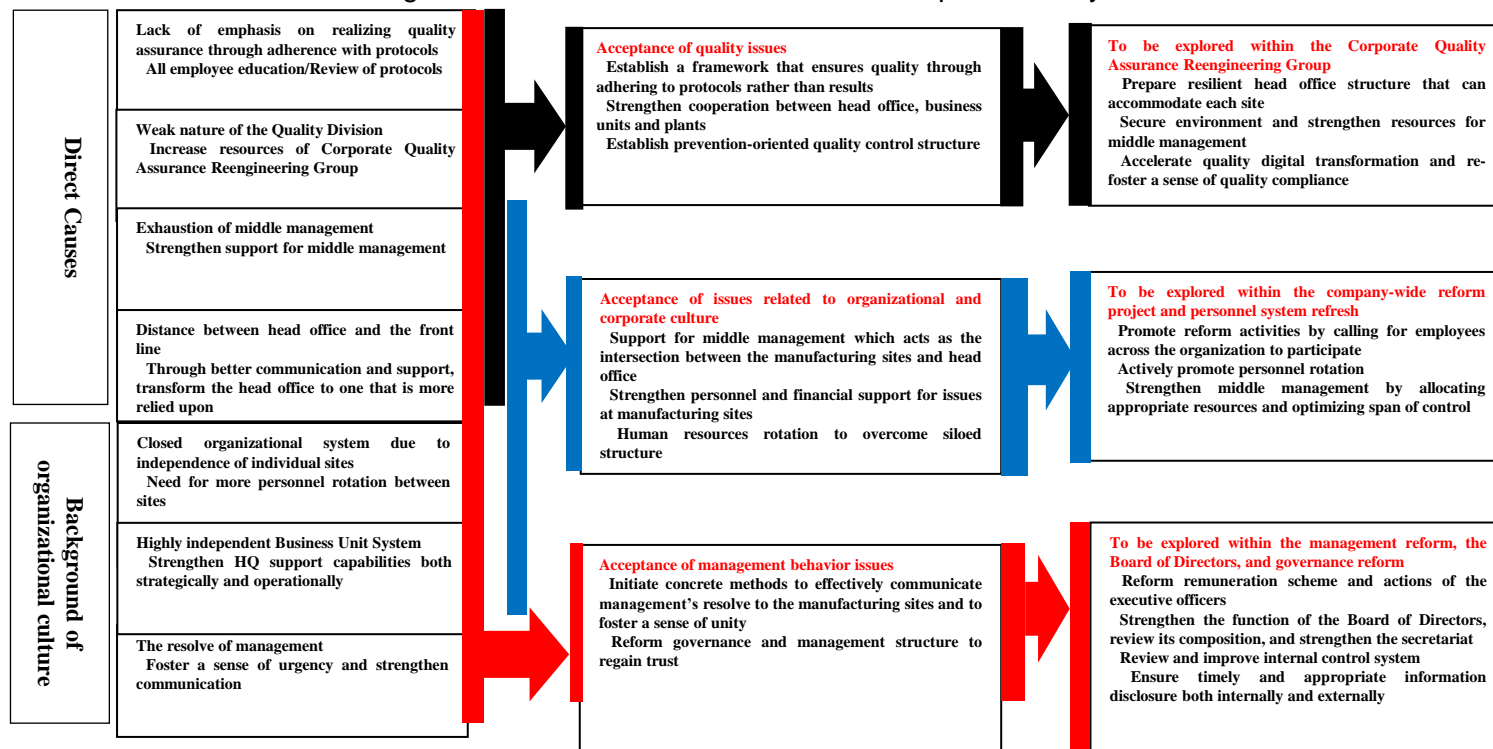
- An inward-looking, closed organizational culture with the manufacturing sites, namely the manufacturing sites and plants working in siloes
- Difficulty in achieving company-wide initiatives in a highly independent business unit system and employees disincentivized from pursuing measures that would increase costs
- An insufficient level of resolve of the management to realize its quality-first approach, along with a lack of the right environment and insufficient measures to communicate the management’s intent to the employees, as well as quality inspection measures becoming a mere routine

Recommendations

- ① Ingrain a company-wide understanding and correct perception of quality (ensuring quality through adherence with protocols)
- ② Check and review processes such as procedure manuals from a third party's perspective
- ③ Strengthen the quality control division
- ④ Support and strengthen middle management, especially general managers and section chiefs on the manufacturing sites
- ⑤ Bring the headquarters/corporate function departments and the manufacturing sites closer
- ⑥ Encourage affiliation with the company rather than the existing strong affiliations at a plant/works level
- ⑦ Implement measures based on the business unit system
- ⑧ Demonstrate management's resolve in strengthening quality compliance

3. Summary of measures to prevent recurrence

- The investigation by the Investigative Committee into quality practices at all of the company’s manufacturing sites and plants (all 22 facilities) will continue, and the company aims for the investigation to be completed by April 2022. Mitsubishi Electric will make a concerted effort to implement measures developed based on the results of these investigations to prevent recurrence at each individual site.
- While the causes and recommendations outlined in the report of the Investigative Committee are in relation to Nagasaki Works and Kani Plant of Nagoya Works, the direct and underlying causes as well as recommendations are wide-ranging across areas of **quality assurance, organizational culture and governance**. In order to achieve reform in these areas promptly and thoroughly, the company recognizes the need to develop systems and measures to address **quality assurance, organizational culture, and governance** issues at a company-wide level, and implement them from October onwards. The company will reflect on the result of these future investigations and continue to refine and develop the new systems and measures.



1. Quality assurance

- **Corporate Quality Assurance Reengineering Group:** will be established on October 1st under the direct control of the CEO and will be responsible for establishing a new quality assurance system that is led by the head office.
- **Company-wide measures :** Corporate Quality Assurance Reengineering Group will be the driving force to reconstruct the control function, address technology and resource issues, and re-foster an awareness of quality compliance.

2. Organizational culture

- **Company-wide reform project "Team Sousei (Creation)":** a diverse range of employees who have ideas on reforms will be invited to join the team in October. They will come up with specific proposals for the formulation of an action plan to create a new Mitsubishi Electric by March 2022.
- **Renewal of the Personnel System:** break down the closed culture, reform the management team itself, and support middle management and front-line workers.

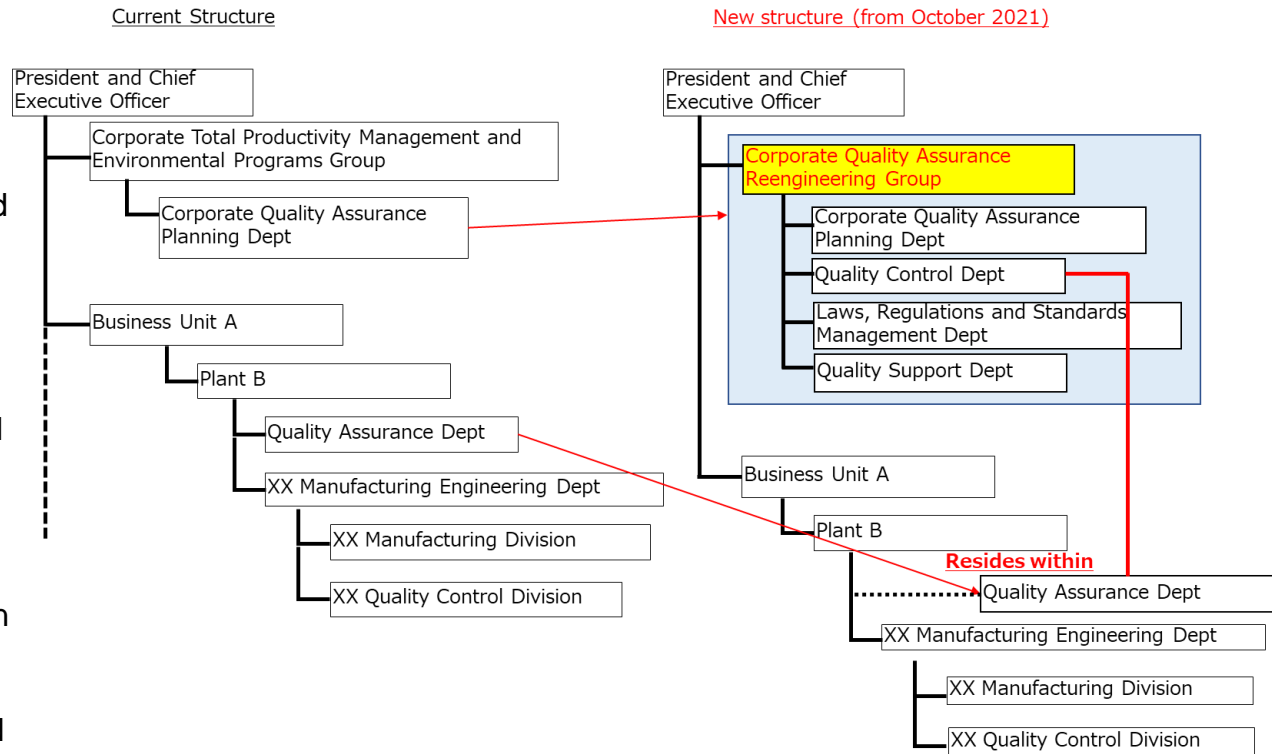
3. Governance

- **Strengthening management supervisory function - Board of Directors Reform:** Strengthening the functions of the Board of Directors, Review of the composition of the Board of Directors, Strengthen the functions of the Board of Directors Secretariat, Strengthen the functions of the three statutory committees
- **Governance Review Committee:** a newly established body commissioned by the Board. By March 2022, this Committee will identify problems and provide recommendations from improvement to the Board as part of efforts to assess the company's internal control and governance system.

(1) Creating a new company-wide structure for quality assurance led by the company head office - Establishing a dedicated Corporate Quality Assurance Reengineering Group

- ① Establish a new quality assurance system that is head office-led
- ② Share knowledge and provide flexible support across business units

- On October 1, the Corporate Quality Assurance Reengineering Group will be established under the direct control of the CEO, and will be responsible for implementing measures to prevent recurrence, and lead the efforts to strengthen quality governance throughout the group companies.
- In April 2022, an external executive officer in charge of quality (CQO) will be appointed to head the Corporate Quality Assurance Reengineering Group.
- The company has set aside 30 billion yen over the next two years for investments necessary for the development of infrastructure related to the quality assurance system, etc., and will make investments as quickly as possible based on priority.



(2) Company-wide measures for quality assurance reform

Restructuring the control function

- ① Create greater independence and separation in the chain of command for quality assurance from the manufacturing sites
- ② Strengthen quality assurance functions
(Support for stricter business processes for quality control, etc.)

Addressing technical capabilities and resources issues

- ① Strengthen and ensure compliance with laws, regulations and public standards
- ② Enhance quality through IT and digitalization (invest 30 billion yen over two years)
- ③ Strengthen support for manufacturing sites at head office
- ④ Training of quality control personnel

Re-fostering an awareness of quality compliance

The company will further implement the following measures to instill its **compliance philosophy “Always Act with Integrity”**, which was established in June 2021, and ingraining the concept that **"quality is guaranteed through adhering to established processes"** among its employees.

- ① Revitalize personnel rotation
- ② Instill awareness of quality compliance among the senior management
- ③ Quality Compliance Awareness Training

(1) "Team Sousei (Creation) ", a company-wide reform project

- It is important to get employees to participate in fundamental management reform and to rebuild the company from the inside out. A company-wide reform project "**Team Sousei (Creation)** " will be launched in October. About 40 employees will be selected to drive this project following a company-wide call to participate.
- The aim is to achieve a culture where employees feel that they can consult with their superiors, one that tolerates failures and fosters collaboration to solve issues through shared information. Working towards the creation of a new Mitsubishi Electric, the project will start by collecting various opinions from within the company as well as external experts, with the aim of transforming it for the better.
- Ideally by March 2022, the project team will identify several "core themes" that are most important and urgent for the company, and the team members and the management will work together to formulate concrete proposals and an action plan for reform.
- Through this initiative, the company also plans to address the issues pointed out in the Investigative Committee's report, such as "insufficient support by senior management for middle management (mainly at the section chief level)" and "the distance and disconnect between the manufacturing sites and the head office/corporate function departments".

(2) Renewal of the Personnel System

- The Investigative Committee's report pointed out many issues regarding Mitsubishi Electric's corporate culture and management. Mitsubishi Electric takes the report's findings seriously and will renew its personnel systems accordingly.
- The company will strive to achieve a culture where employees feel that they can consult with their superiors and one which tolerates failures and fosters collaboration to solve issues through the sharing of information.
- **① Overcome the inward-looking organizational culture**
 - Breaking down walls within the organization through the dynamic promotion of personnel rotation
 - Overcome the inward-looking organizational culture
- **② Change in behavior of senior management**
 - Revamp of remuneration for executive officers as well as change in behavior through coaching
 - Change in the evaluation method and promotion of managers
- **③ Supporting middle management and those at the manufacturing sites**
 - Appropriate resource allocation and scope of control
 - Strengthen communication with the top management

Strengthening management supervisory function – Board of Directors Reform

Board Advisors, Inc., a third-party organization, was requested to examine the effectiveness of the Board of Directors. It was revealed that there is room for improvement in the effectiveness of the company's Board of Directors in terms of Board functions, Board composition, Board secretariat functions, and the functions of the three statutory committees.

① **Strengthen the functions of the Board of Directors**

Presentation of the major direction of corporate strategy by the Board of Directors, etc.

② **Review of the composition of the Board of Directors**

Appointment of an independent outside director as Chairman of the Board of Directors, etc.

③ **Strengthen the functions of the Board of Directors Secretariat**

Review of Board of Directors secretariat functions, including expansion of staff, etc.

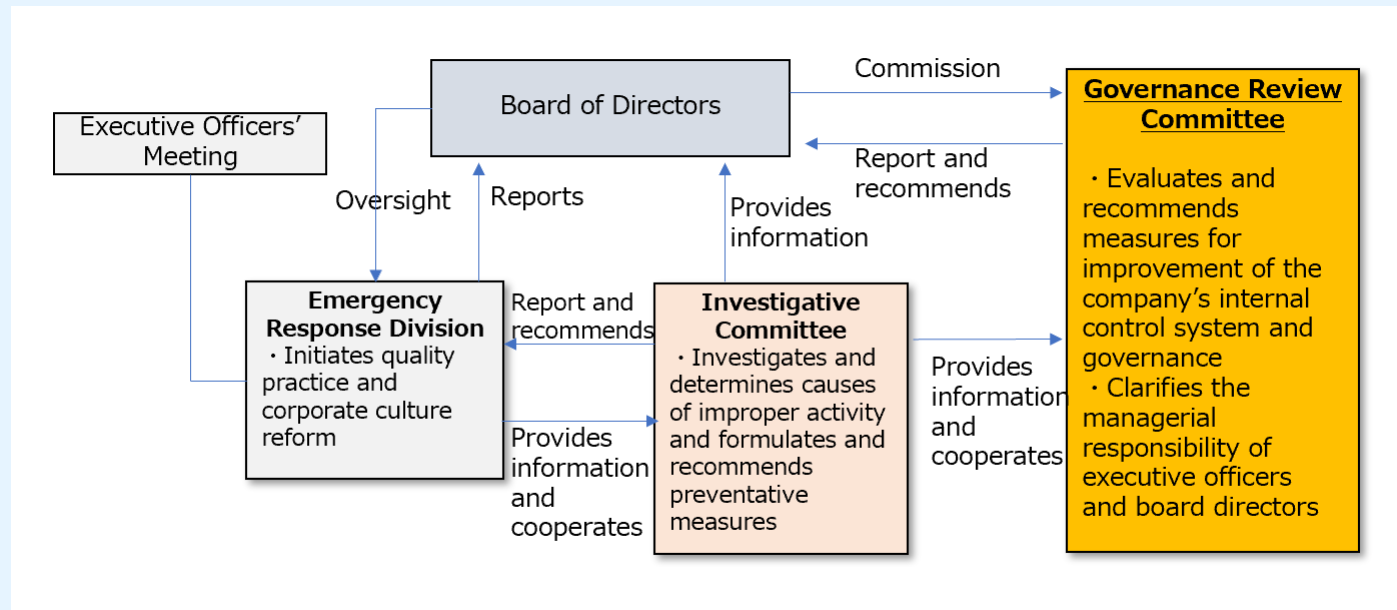
④ **Strengthen the functions of the three statutory committees**

Strengthen supervision of Executives, led by independent outside directors

- The Board of Directors takes the results of this assessment very seriously and in consideration of the upcoming assessment of the Governance Review Committee, it will take action with the aim **of sustainably improving corporate value in the mid-long term.**

Assessment of internal control systems – assessment and recommendations by the Governance Review Committee

- The **Governance Review Committee** will assess the company's internal control system and governance and will aim to provide a summary of issues identified and recommendations for improvement by March 2022.
- The Governance Review Committee will comprise several external personnel including lawyers with whom the company has no existing commercial relationships. Based on the issues pointed out by the Investigative Committee, and with its main focus on improper quality practice, it will assess and identify problems **relating to the company's internal control system and governance in general**.
- If the assessment identifies areas of insufficiency, the Governance Review Committee will also clarify managerial responsibility of executive officers and board directors.



1. Quality Assurance

A dedicated **Corporate Quality Assurance Reengineering Group** will be established under the direct control of the CEO and will be responsible for establishing a new quality assurance system that is led by the head office, sharing knowledge and providing flexible support across business units. **Company-wide measures** will be implemented to reconstruct the control function, address technology and resource issues, re-foster an awareness of quality compliance.

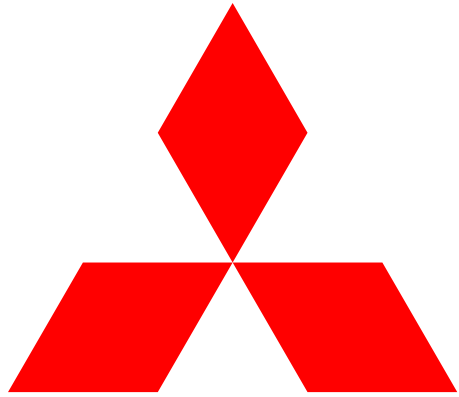
2. Organizational Culture

As part of **the company-wide reform project "Team Sousei (Creation)"**, Mitsubishi Electric will invite employees who have ideas on reforms to join the team and come up with specific proposals for the formulation of an action plan to create a new Mitsubishi Electric. At the same time, the company will make a **renewal of the Personnel System** by breaking down the closed organizational culture, reforming the management team itself, and supporting middle management and front-line workers.

3. Governance

As part of its efforts to strengthen the company's management oversight functions and to realize sustainable and mid to long term growth of corporate value, Mitsubishi Electric will push forward with **reform of the Board of Directors**. Furthermore, a **Governance Review Committee**, comprised external experts, will be established to identify problems and provide improvement recommendations as part of efforts to assess the company's internal control and governance system.

- The investigation into quality practices at all of the company's manufacturing facilities and plants (all 22 facilities) will continue, and the company will report accordingly roughly every three months on the findings of the investigation and progress on the steps the company is taking. The company aims for the investigation to be completed by April 2022 and will then proceed with investigations into its group companies.
- If, in the course of future investigations, issues that need to be publicly announced are identified, the company will promptly do so, regardless of the anticipated schedule as above.
- Also, depending on the progress of discussion with customers or investigations related to this improper quality practice, there may be additional costs due to compensation payout to customers, impact to sales activities and additional actions and preventative measures being conducted due to new discoveries of improper quality practices. The company will promptly disclose any discoveries that would affect this term's consolidated performance forecast.
- The company takes the suggestions and recommendations of the investigative committee seriously and will make a concerted effort to implement these reforms, including culture practice and protocol reforms, and strive to regain the public's trust through active dialogue with our customers, shareholders, investors and all of our valued stakeholders, updating them with communication that is open and transparent.



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Changes for the Better