

P-PR-025:

Work Standard for Stopping and Restarting a Production Line

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PRODUCTION DEPARTMENT

- ① Purpose of “P-PR-025”
- ② Definition of Terms
- ③ Workflow for line stop and restarting operation
- ④ Process for line stops and restarting operation

① Purpose of “P-PR-025”



To clarify the **recovery methods** and **personnel management methods** during a stoppage for routine and abnormal stops that occur in manufacturing location production lines or processes and thereby **reduce stoppage hours** and **prevent outflow of defective products**

② Definition of terms

- **Routine Stops** – are performed to stop the line in preparation of problems that may occur and to make plans to deal with such problems as are expected in advance.



Production line stops:

- When the line is stopped according to rules defined by the company's work regulations, etc. Stops during break time and when workers leave at the end of the day.
- When the line is stopped based on plans made in advance. Includes planned stops, changes and adjustments to the production plan due to insufficient inventory or delays in part delivery, etc

② Definition of terms

- **Monitoring** - Observing defect locations while performing production
- **Error Stops** – Stops other than routine stops and are stops at the production line or a stage in the line that are not planned due to unexpected or unpredictable reasons as below.

→ Emergency stops including when a part quality error occurs, assembly quality error occurs, equipment malfunction occurs, instructions based on Quality Management or a sudden power outage occurs



③ Workflow for line stops and restarting operation

Stopping operation

Process	Action
Reason of stop	Reason of stop occurs
Is it an error?	No: Routine Yes: Error (non-routine)
Is it a stop?	Yes: Stopped No: Continue
Respond to stop	Stop instructions
	Stop processing
	Display work suspension
	Manage actual part
	Cleanup
	Own stage standby

③ Workflow for line stops and restarting operation

Countermeasure

Process	Action
Is it severe?	Understand the situation
	Verdict
	Initial report
	Man-hour use
Investigate cause	Share information
	Investigate effect
	Investigation analysis
Design and Implement Countermeasure	Design and Implement Countermeasure
Is it effective?	Check effectiveness of countermeasure

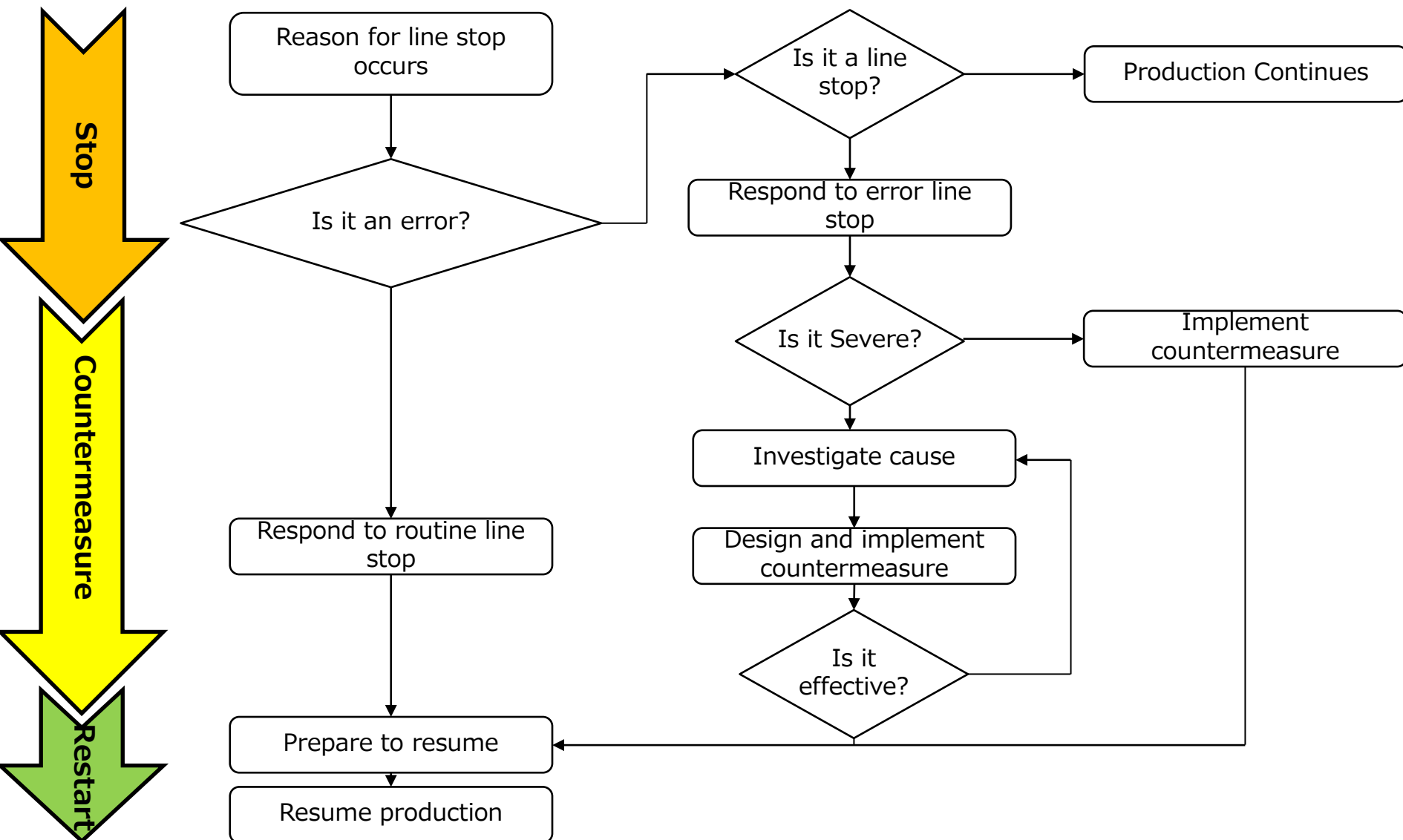
③ Workflow for line stops and restarting operation

Restart operation

Process	Action
Prepare to Resume	Restart modification
	Re-check elementary work
	Prepare to resume
	Check preparation to resume and give verdict
Resume Production	Resume instructions
	Resume work
	Initial Management for resumption
	Return to normal
	Record

③ Workflow for line stops and restarting operation

Major Process and Workflow



④ Process for line stops and restarting operations

Process	Action	Overview of each process
Reason for stop	Reason for stop occurs	<ul style="list-style-type: none">➤ This refers to when it is known that something has occurred for which the production line should be stopped➤ When there are no particular instructions for break time or to leave work, the workplace bell is to be the reason for stopping production➤ If there is imminent danger to a person, anyone can immediately emergency stop the line➤ When an operator gives a warning due to the occurrence of an unexpected event and the supervisor, staff and manager are made aware of the error, this will be the starting point of the process

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Is it an error?	No: Routine Yes: Error (non-routine)	<ul style="list-style-type: none">➤ Routine stops are when stops are prepared in advance including planned stops and production adjustments planned beforehand in addition to stops related to break time and the end of the work day specified in the work regulations, etc.➤ Error stops are when the production line stops due to an unexpected reason
Is it a line stop?	Yes: Stopped No: Continue	<ul style="list-style-type: none">➤ The production line is stopped by the supervisor when all elementary work for the product, work in progress and part actually being worked on at the stage in the line is not complete within the Takt Time due to the occurrence of the event.➤ The supervisor can continue production if the error that occurred is minor and if it is possible to return to normal through work support or similar in a short time or within the Takt Time in which the work is actually being performed

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Respond to stop	Stop instructions	<ul style="list-style-type: none">➤ Instructions to stop the production line are to be made known to the entire line to be stopped and to its relevant personnel based on the following methods➤ Broadcasting system (bell sound)➤ A warning system for the line or similar (lamp, buzzer sound, etc.)➤ Verbal notice from the supervisor
	Stop processing	<ul style="list-style-type: none">➤ Displays that a line that has stopped production is currently stopped➤ When a production line stops, the operator, as a general rule, will complete all elementary work required for the product, etc., that is being actually worked on at the stage in the line for which they are in charge➤ However, when it is unavoidable and there is no possibility of completing all required elementary work immediately after the stop instructions for the product, etc., that is being actually worked on, production can be suspended at a convenient point within the elementary work

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Respond to stop	Display work suspension	<ul style="list-style-type: none">➤ When the operator suspends the work for the product, etc., that is being actually worked on, the operator must display that the work is suspended.
	Manage actual part	<ul style="list-style-type: none">➤ The supervisor displays the necessary classification for the product, etc., and processes it based on the event that occurred➤ Any necessary actual parts management is performed and includes prevention of outflow and contamination of defect parts, re-work parts and reject parts by clearly labeling them as such➤ Other tasks are performed including required anti-dust treatment, traceability management and serial number control➤ Parts subject to special management are managed according to determined procedures

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Respond to stop	Cleanup	<ul style="list-style-type: none">➤ When an operator stops the production line during work hours, after completing any required elementary work they are to promptly prepare and cleanup to ensure the smooth restart of production by performing tasks including sorting, arranging and cleaning tools, jigs, part shelves, work benches and the workplace as well as replenishing common small parts such as screws
	Own Stage Standby	<ul style="list-style-type: none">➤ When the operator has not been given any particular instructions from the supervisor while the production line is stopped, they are to standby at their own stage of the line in preparation of production restarting➤ The operator must not leave their own stage of the line without consent even when the production line has stopped during work hours➤ If it is necessary for the operator

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Is it severe?	Initial Report	<ul style="list-style-type: none">➤ the supervisor will report immediately to the relevant personnel with information concerning the error that occurred at the production line and report that the production line has been stopped➤ The supervisor will communicate any information necessary to ensure that the party that receives the report can give rise to immediate action. (Time that the error occurred, machine type, line, stage in line, defect quantity, defect part, malfunctioning equipment, jig, defect event and the malfunction event, etc.)
	Man hour use	<ul style="list-style-type: none">➤ The supervisor, staff and manager who are in charge of the production line that is currently stopped are to estimate the time needed until production can be resumed.➤ Measures are to be taken and man-hour use reported based on the length of the estimated stop time of the production line.

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Investigate cause	Share information	➤ The supervisor, staff and manager who are in charge of the production line that is currently stopped are to share any necessary information with the relevant department and request their cooperation. They will also gather together responsible personnel and hold a meeting to communicate information.
	Investigate effect	➤ The supervisor, staff and manager who are in charge of the production line that is currently stopped are to ask the cooperation of the relevant department and verify the range of impact if the error that has occurred is a serious event.
	Investigation Analysis	<ul style="list-style-type: none"> ➤ The supervisor, staff and manager who are in charge of the production line that is currently stopped are to perform detailed investigation analysis required to plan and implement a countermeasure ➤ When expert knowledge is required to analyze the cause of the error event, send the analysis request to the relevant department who set the response deadline.

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Implement Countermeasure	Implement Countermeasure	<ul style="list-style-type: none">➤ The supervisor and any other relevant personnel will plan and implement a temporary countermeasure if a permanent countermeasure cannot be immediately implemented➤ The supervisor and any other relevant personnel will formulate a plan to implement a permanent countermeasure alongside the temporary countermeasure and make the necessary arrangements➤ If expert knowledge is required to plan the countermeasure, cooperation from the relevant technical department will be obtained➤ The supervisor will change the stage in the line, provide work education and training to implement the countermeasure after agreeing on the countermeasure with the relevant department

④ Process for line stops and restarting operations

Process	Action	Overview of each process
Is it effective?	Check effectiveness of countermeasure	<ul style="list-style-type: none">➤ The supervisor and any other relevant personnel will plan and implement a temporary countermeasure if a permanent countermeasure cannot be immediately implemented➤ The supervisor and any other relevant personnel will formulate a plan to implement a permanent countermeasure alongside the temporary countermeasure and make the necessary arrangements➤ If expert knowledge is required to plan the countermeasure, cooperation from the relevant technical department will be obtained➤ The supervisor will change the stage in the line, provide work education and training to implement the countermeasure after agreeing on the countermeasure with the relevant department

THANK YOU!