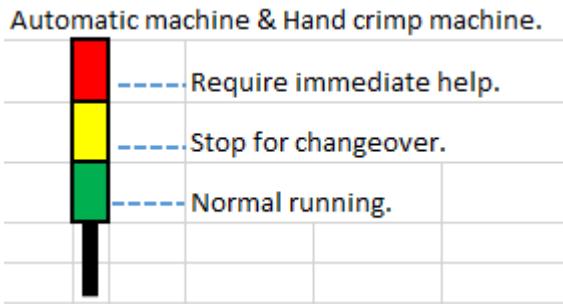


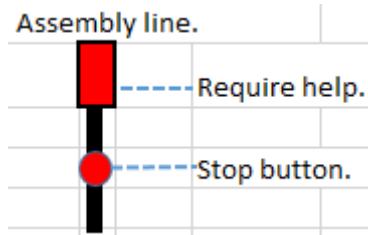
## PROCESS REFLECTIONS

### Andon Signaling Systems

Communication is important in managing a lean production system and simple communication is a key to clarity. Visual signals are often used to share information about production status for a full production line as well as for individual workstations. Often the status of production will be shown using a color-coded tree of lights called an Andon (行灯). Andon signals can indicate many things as a function of the standard established within a production system. The original meaning of Andon is a “paper lantern” but Toyota co-opted the term and incorporated it as part of a jidoka (自働化) system for intelligent automation to signal the machine-induced problems. However, the meanings have been extended to include material flow and quality problems. The purpose of an Andon is to identify problems immediately and to enable recovering from the situation rapidly as the worker is requiring immediate help to take corrective and preventive action. An example of an Andon light tree is shown below:

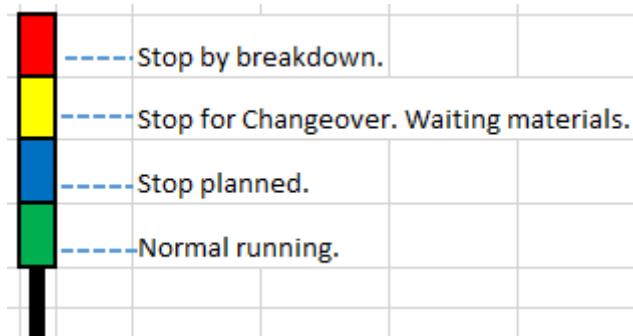


Often an Andon may have two signals for problems – one initiated by the operator which is an urgent request for help while the second is activated by a supervisor who has the authority to stop production. This type of Andon may have two signals:



The role of a supervisor or mizusumashi (みずすまし) is to execute production safely by managing the human resources, controlling the flow of production according to the plan to achieve efficiency in the use of labor, materials, and machines. These types of daily controls are exercised by acting as a second set of eyes (jishuken (自主研)) and when non-standard work is observed training the operator so they can make a return to the work standards. Jishuken is a management-directed continual improvement step where the supervisory function checks the standard work. It is the job of the supervisor to train the workers and whenever workers do not or cannot follow standard work then the supervisor should take an immediate corrective action (imadesho (今でしょ)) - meaning, “right now” or “now is the time” – or more precisely, do it right now - re-establish the standard work. Whenever an Andon signal indicates other than normal production, then it is a signal that something must be done immediately.

Recognizing that there can be many different signals that are important to communicate immediately, there is no “standard” Andon, but each production system designs its own according to the needs that it has for communicating. Another example of an Andon system is illustrated below:



Kaizen should be made at the time that improvement is required; therefore, kaizen is always imadesho! Visual management always has three purposes for communication: one is to share company information to cultivate everyone’s participation and engagement in the strategic and operational direction of the company; a second is to maintain the condition of work as it should be (e.g., following the plan); and the third is to control the gemba for safety, production, and productivity.

**Reflective Questions:**

1. Why is it a bad idea to let workers stop production but a good idea to let them signal that they need a little “help” to keep things going right? How does this relate to division of responsibility for the flow of production and the responsibility of workers compared to supervisors?
2. Kaizen changes should be made immediately; however, kaizen activities are planned events to coordinate work activities of production teams. Kaizen activities are often called a “kaizen blitz” in American versions of lean. How can you reconcile these two types of “kaizen” which means to make an improvement for betterment?

**Lesson to be Learned:**

Communicating worker perception about the quality characteristics of their work (either materials in the workflow or the act of assembling a product) are “critical-to-quality” activities in production processes and must be explicitly managed so there is clarity in the meaning of signals and that there is a clear “yes” or “no” meaning communicated.

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