



Subject: Quality Assurance Process Control Plan and Fool Proof Checklist

PURPOSE:

The Quality Assurance Process Control Plan and Fool Proof Check sheet details the supplier's process and quality control methods used in the manufacturing and processing of the parts and/or raw materials

SCOPE:

It is the responsibility of the supplier to maintain their Quality Assurance Process Control Plan and Fool Proof Check sheet as changes are made. The supplier is required to submit a copy to MACI when revisions are made.

CONTENT:

Quality Assurance Process Control Plan:

The Quality Assurance Process Control Plan describes the supplier's process and systems used to minimize process and product variation. Each process and all inspections, including in-process and periodic must be documented.

An alternate format may be used as long as it contains all required information. A single Quality Assurance Process Control Plan may be used for a family or group of parts produced by the same process.

The Quality Assurance Process Control Plan should be completed as follows:

- ① Supplier: Supplier Name.
- ② Contact Person: Person to contact for inquiries.
- ③ Date: Date Process Sheet is issued.
- ④ Page: Page Number.
- ⑤ Part Name: Name or description of part.
- ⑥ Part Number: MACI part number.
- ⑦ Supplier Sign-Off: Responsible representative approval.
- ⑧ MACI Sign-Off: MACI Approval.
- ⑨ No.: Number assigned to process.
- ⑩ Process Type/Description: Process description and type (assembly, lathe, drill, etc.)
- ⑪ Class: Important characteristics \diamond , (C1) , (C2)



Subject: Quality Assurance Process Control Plan and Fool Proof Checklist

Supplier Fool Proof Checklist: (QA-SM-09-F2)

The Supplier Fool Proof Checklist is used to confirm Fool proof and automated inspection stations are built and maintained properly.

The Supplier Fool proof Checklist is to be completed for every process. New Product or Process, MACI may confirm Fool Proof Check items during our Process Audit. (QA-SM-09-F2)



Michigan Automotive Compressor, Inc.
Supplier Fool-Proof Checklist

Item	Description	Requirement	Results	Judge		
1	Automatic inspection by machine (Missing, extra, wrong or out of spec parts etc.)	NG samples are required for automatic inspection processes and NG sample confirmation and mastering are required at routine base.				
2	NG chute functions properly (Photo eye or prox)	NG part caused machine fault should not be cleared until the NG part goes to NG chute.				
3	NG chute sensor is broken or chute is full	At this situation, NG part caused machine fault should be not cleared by placing NG part on the NG chute.				
4	NG parts handling	Require clear procedure for how to handle NG part from each process.				
5	Manual mode switch operation without removing NG part	When NG part is detected, confirm manual mode operation should not release the NG part.				
6	Interrupt cycle before it completes, part should be NG. Check:	Open door				
		Switch to manual mode				
		Break light curtain				
		E-stop				
7	Part confirmation /present sensor at working station is broken	Interrupt other process if this process faults out				
		Confirm part should not bypass the station and machine should fault out.				
		8	Process control sensor for inspection (limit switch, prox sensor, laser sensor etc.) is broken	Confirm there should be a machine fault and part should not be judged good.		
		9	Vision system trick check:	Turn Offline should not be able to go to auto		
Disconnect light source run cycles						
Turn on lights inside machine run cycles.						
Confirm fixturing for light source(s) is stable and secured.						
Confirm judgment for each ng output and their interactions.						
Confirm consecutive NG images judged NG						
10	Detection of incomplected part from previous process	Confirm the process is able to detect incomplected part from the previous process. Consider to design the process to use the last feature of the previous process as datum.				
11	Stopper on conveyor is broken at NG station and work station	Confirm if part skips the station and the part will be detected as NG at the next process.				
12	Picking sensor or Hotel indication lamp	Confirm if not picking or picked from wrong spot, machine will fault out.				
13	Machine/process damage to parts	Confirm there is not interference at machine and process to cause part damage.				
14	Robot is down, by-pass fool proof	Confirm if Robot is down, what is the fool proof.				
15	Customer touch points	Confirm 100% verification for customer touch points.				
16	Rework Process Check	If separate rework switch reconfirm detection foolproof in rework mode.				
		Reinsertion location(s), confirm it should not bypass detection.				
		Part NG again handling.				
		Rework ID.				