

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

THE JAGUAR LAND ROVER WAY

OVERVIEW

The purpose of this standard is to define a single standard approach to solve problems robustly and efficiently in all areas of JLR.

CONTENT AUTHOR

Andrew Noble (anoble2)

CONTENT OWNER

Andrew Sherratt (asherratt)

LAST PUBLISHED

11/29/2024

NEXT REVIEW DATE

11/29/2026

OWNING FUNCTION(S)

Product Engineering
Quality

OWNING LOCATION

United Kingdom

SCOPE

WHY

1.1 OBJECTIVE/PURPOSE

The purpose of this standard is to define a single standard approach to solve problems robustly and efficiently in all areas of JLR and at all stages of the product lifecycle.

1.2 RISKS

If the deliverables defined in this document are not applied robustly, the following can result:

- Unproven and/or ineffective ICA
- Failure to identify root cause(s)
- Unproven and/or ineffective PCA
- Loss of lessons learned knowledge
- Inefficient use of problem solver's time or solving the wrong problem

Directly, all of the above result in an unnecessarily high number of faults being delivered to customers, with the associated costs to the business.

WHAT

2.1 SCOPE AND EXCLUSIONS

This standard is applicable to solving product* related problems.

*all saleable JLR product content.

Issue: An issue is any relevant event that has happened, was not planned, and requires action. An issue with an obvious cause and solution does not need a problem solving activity. Searchable record keeping of issues is important (eg CCAR, or AIMS). Issue management is out of scope of this standard.

JLR-STN-56258, ISSUE LEVEL 3.3 PROBLEM SOLVING STANDARD

Problem: Where an issue does not have an obvious cause and solution, or where issues are recurring in spite of action taken, then problem solving steps are needed. Searchable record keeping of problem solving is important (eg IQM). The scope of this standard is Problem Solving.

Regarding applicability to external production suppliers:

This standard is a requirement for all problem resolution documents that are to be submitted to Jaguar Land Rover for retention by Jaguar Land Rover.

This standard is a recommendation for all problem resolution documents that are to be presented to Jaguar Land Rover for review but retained by the originating supplier as a record.

2.2 RETENTION OF RECORDS

Problem solving records generated from following this standard shall be stored in the relevant official database (eg IQM).

Records are considered OFFICIAL and should be retained in line with RMP code 08.04, and retained for 20 years after R+20.

Security classification will routinely be considered as Confidential - however in some exceptional circumstances this may be adjusted to Secret depending on the nature of the issue being investigated and alternative storage solution may be considered.

WHO

3.1 CONSULTATION PARTICIPANTS

Andrew Sherratt (asherratt), Andrew Mclure (amclure1), Ciara McNamara (cmcnamar), Andy Shenton (ashenton), Julian Allen (jallen14), Corinne Dell (cdell2)

3.2 APPROVERS

Julie Stears (jliddle), Dave Adkins (dadkins), Andrew Mclure (amclure1), Simon Dudley (sdudley3), Steve Oldham (soldham2), Danella Bagnall (dbagnall), Paul Horner (phorner), Kim Ballamy (kballamy)

WHERE

4.1 APPLICABILITY

Applicability	Operational
Functions/Departments	Manufacturing, Product Engineering, STA, Quality Performance
JLR Locations	United Kingdom, Europe Region, China Region, North America Region, Overseas Region

4.2 APPLICABLE KEY WORK SYSTEM(S)

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

2.08 Oversee Delivery of Quality of Products and Services, 14.14 Plant Quality, 14.15 Incoming Quality and Supplier Parts Quality (SPQ), 14.16 Manufacturing Engineering (Adv and Current), 14.18 Plant Vehicle Teams (PVT) and sub-sys teams, 15.05 Service or Diagnose and Fix The Vehicle, 15.07 Customer Quality Issue Resolution, 12.12 Manage Engineering & Launch Quality, 6.03.01 Supplier Quality Management STA, 12. Product Creation and Delivery System

4.3 APPLICABLE IT SYSTEM(S)

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

NARRATIVE

Introduction

Issue: An issue is any relevant event that has happened, was not planned, and requires action. An issue with an obvious cause and solution does not need a problem solving activity. Searchable record keeping of issues is important (eg CCAR, or AIMS).

Problem: Where an issue does not have an obvious cause and solution, or where issues are recurring in spite of action taken, then problem solving steps are needed. Searchable record keeping of problem solving is important (eg IQM).

The problem solving method is described in this standard.

1.	PROBLEM SOLVING - LAYERED APPROACH									
	Problem Solving follows a layered approach. If the steps within a layer cannot be met or do not resolve the problem , additional support is added by growing the team and undertaking the adding additional steps described in the next layer.									
1.	<u>LAYER 1 - Basic</u>									
1	Maintain Discipline - where problems will be solved principally by adherence to known standards.									
1.	<u>LAYER 2 - Normal</u>									
2	Something Changed - where problems will be solved by deducing what change has led to the problem.									
1.	<u>LAYER 3 - Complex</u>									
3	A wider set of analysis set of tools will be required to determine the cause of the problem as interactions between inputs may be causing the problem .									
1.	<u>LAYERS OF COMPLEXITY</u>									
4	<table><tr><td>DMAIC+R</td><td>8D</td><td>Layer 1 - Basic Maintain Discipline (JLR-TMP-567253)</td><td>Layer 2 - Normal Something Changed (JLR-TMP-567027)</td><td>Layer 3 - Complex Fundamental Study (JLR-TMP-567027)</td></tr></table>					DMAIC+R	8D	Layer 1 - Basic Maintain Discipline (JLR-TMP-567253)	Layer 2 - Normal Something Changed (JLR-TMP-567027)	Layer 3 - Complex Fundamental Study (JLR-TMP-567027)
DMAIC+R	8D	Layer 1 - Basic Maintain Discipline (JLR-TMP-567253)	Layer 2 - Normal Something Changed (JLR-TMP-567027)	Layer 3 - Complex Fundamental Study (JLR-TMP-567027)						

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

	Define	D0 - Prepare for the problem solving process	Is it New		
			Record Problem in official system		
			Initial Problem Statement		
			Emergency Response Action		
		D1 - Team formed and fully functional	Identify Leader, Handshake		Identify the people needed
			Form Team		
		D2 - Problem Definition completed	Complete Problem Definition	Go Look See	Additional Problem Definition Analysis
				Set Priority	Scope Decision
	Measure	D3 - Interim Containment Action (ICA) has been implemented	ICA Action Decision	Effectiveness of ICA	
			Control of non-conforming material		
		D4 - Root cause(s) and Escape Point(s)	Confirm Problem root cause	Confirm adherence to existing standards	Establish Performance Standard

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

	Analyse	have been determined		Reproduce Customer's Problem	Root Cause investigation plan
				Progress with 5 Whys	Measurement System Analysis
				Ask for Help if needed	Problem Root Cause FTA
				Start risk assessment of other products and plants	Escape Point FTA
					Systemic Underlying Cause
					Confirm Problem root cause contributions
	Improve	D5 - Permanent Corrective Actions (PCA) have been verified.	Develop PCA	Develop implementation plan	Review and Update Team
				Identify potential PCA risks	Peer review of PCA improvement plan
				Measure Expected Effectiveness	
		D6 - Permanent Corrective Action(s) (PCA)	Implementation Date and VIN	Assess Actual Effectiveness	Peer review of PCA effectiveness using data

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

		have been validated	Implement the PCA	Removal of ICA	
Control	D7 - Prevent Recurrence Action(s) (PRA) have been implemented	Training	Update FMEA	Peer review of PRA implementation	
		Review PCA for permanence	Update Process Documents		
			Update control plan		
			Update Maintenance Plan		
			Update Engineering Documents		
			Update STA lessons		
			Lessons Sharing Card		
			Complete Risk Assessment of other product / manufacturing lines for compliance		
			Replicate		
		D8 - Cultural and organisational issues	Give Recognition	Reflection	Address Systemic Underlying Root cause
Replicate					

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

		addressed and the team's work has been recognised		Communicate Responsibility for Outstanding Compliance Actions	
			Final update to Official Problem Documentation		
	<p>NOTES:</p> <p>1) Official Problem Documentation must be updated throughout the problem solving process in the specified system as defined by the relevant procedure(s)</p> <p>2) Emboldened items tie back to the '13 steps of problem solving' referenced in earlier issues of this standard</p> <p>3) FTA = Fault Tree Analysis</p> <p>4) Detailed definition of each step listed in the table above is available in the appendix table at the end of this document</p>				
2	PRINCIPLES, ROLES & RESPONSIBILITIES				
2.1	PRINCIPLES				
	<ol style="list-style-type: none"> Everyone is Empowered. On discovering a problem, everyone at JLR and has a duty to solve problems they find and is empowered to do so. Coaching Intervention by management is provided by exception or when requested. Obstacle escalation can be triggered by time or value. Timing escalation is driven by planning and prediction of the time required, not by becoming late. Skills required for problem solving are managed. Access to data, measurements, capability, controls and standards are core skills. Evidence is essential to verify that outcomes are achieved (Problem Definition, ICA, Root cause, PCA). If escalation is accepted, we prefer to add team members with needed skills to build on the problem information document, starting with go, look, see. We prefer not to transfer and start again. We prefer to review problems at the location of the occurrence (or location of the prevention) rather than in a conference room. Quality reviews should include a mix of both "in line" (internal line side / programme delivery) problems and "passed through" complaints (End of Line / external customer) together in one forum. Solving internal problems prevents external complaints. Problems are reviewed until closure – reviews cover all new problems . Open problems are revisited periodically until closed. Prioritisation is by value to the business. We prefer priority to be decided by the manager of the area and made clear to the team. Priority should not be imposed externally. Continuous prevent recurrence – we prefer to initiate prevent actions as soon as escapes are known. All three causes are treated (the problem, the escape point and the systemic underlying cause). We prefer to recognise people according to effectiveness of problem solving and solutions implemented more than we value a short list of improvement opportunities. Metrics that do not encourage problems to be found are counterproductive. Searchable efficient record keeping enables learning from experience. 				

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

	<p>12. This single standard approach to problem solving is used everywhere. Only the level of detail changes to suit the situation.</p> <p>13. If the standard does not work, help us to improve the standard by suggesting improvements.</p> <p>14. Team members freely participate from diverse backgrounds, grades, skills, locations, departments, cultures and languages all work openly together sharing information without hierarchy.</p> <p>15. Ideal operation should be stable, efficient and in control. The goal of Problem Solving is always to return to this ideal state.</p>
2. 2	ROLES
	<p><u>Role Descriptions:</u></p> <ul style="list-style-type: none"> • Local area (The finding area are the first response team) • Problem Team Leader - An appropriate person with sufficient problem solving skills and experience. (JLR associates, supplier, lead programme engineer, Warranty Engineer. Plant SPQ (Supplier Parts Quality) - severity 1&2, STA SM (Supplier Management)- sev. 3 & above) • Core An appropriate person with needed process and standards skills and experience. (Escape Point Process owner, Technical Specialist, Subject Matter Expert, JLR Process Engineer or Supplier's process Engineer) • Management The relevant responsible person with needed coaching skills and experience of problem solving. (Area Manager, Quality Manager, Senior Programme Manager, Engineering function senior manager) • Expert An appropriate person with expert level skills and experience in all aspects of problem solving, statistics, coaching and the wider business context. (Experienced Black Belt /QPD/ Chief Engineer/ CoC Director, STA supplier management)
2. 3	RESPONSIBILITIES
	<p>Everyone:</p> <ul style="list-style-type: none"> • Adhere to standards • Provide an effective first response to problems , using templates to guide. • Define using evidence and data • Record work clearly in the appropriate JLR database (guided by template JLR-TMP-567253 or JLR-TMP-567027) – build and learn from this knowledge base • Solve where possible & escalate when help is required. • Develop understanding of the product, process and performance of the local area
	<p>Manager (LL6) Responsibility:</p> <ul style="list-style-type: none"> • Demonstrate the importance of “Go to Gemba” • Review and challenge problem definition data / evidence • Determine Priority • Make priority clear to all • Move resource in line with priority • Ensure the team is fully functional – with cross functional support and diverse skills • Develop People • Monitor progress

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

	<ul style="list-style-type: none"> Coach the team in problem solving methods and tools Escalate when help required Develop own skills in coaching
	<p>Senior (LL5+) Responsibility:</p> <ul style="list-style-type: none"> Demonstrate what is priority by action: show others what is important by giving those things time Demonstrate the importance of “Go to Gemba” Review and challenge problem definition data / evidence Coach the team in problem solving Ensure Manager has set clear priority Set Strategic direction (this influences priority decision making) Ensure Managers monitor progress and have escalation rules Create and demonstrate the right quality culture Ensure a searchable database is in place where problems can be recorded Promote reflection & learning both within and between teams Ensure skills, including skills in problem solving, are actively managed Adjust responsibility and move resource between functions & departments Enable the resolution of systemic recurring problems
3.	LAYER 1
3. 1	OVERVIEW
	<p>Layer 1 is the first response, described in the table of deliverables under “Basic”. The local area is the first responder and the first response is to maintain process discipline. Problems will be solved in this layer principally by adherence to known standards. If the problem is not new, but standards are not yet established, then inform the team already working on the problem and apply any known ICA and PCA.</p> <p>If the local area predict they will be unable to solve the problem within the time bracket, it is important to seek help by escalation to the supervisor or manager.</p> <p>The supervisor or manager will first provide help by coaching the team. If coaching support is not able to bring matters back into control, the supervisor may choose to escalate to the next layer.</p>
3. 2	RECOMMENDED TIME LIMITS

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

		MAXIMUM TIME FOR THE STEP
	D0	24 hours
	D1	24 hours
	D2	24 hours
	D3	24 hours
	D4	5 working days
	D5	5 working days
	D6	Return to standard: 1 working day Modify standard: 10 working days New standard: 20 working days
	D7	10 working days
	D8	24 hours
	NOTES: Times are a timings are a maximum and should trigger supportive coaching / help. These durations are applicable to Layer 1 - Local (Maintain Discipline)	
4.	LAYER 2	
4. 1	OVERVIEW	

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

Layer 2 is the second line of defence, described in the table of deliverables under “normal”. A problem team leader and core team member will be added to the team. Problems will be solved in this layer principally by deducing what change has led to the problem. The problem team leader, core team member and manager have responsibility for specific deliverables detailed in the table below.

The first actions of the problem team leader will be to review problem definition evidence and go look see at the location the problem occurs. The problem team leader will use problem definition evidence to determine priority in order to justify appropriate resources and people for the project.

If the problem team leader feels unable to solve the problem effectively, it is important to seek help by escalation to the supervisor or manager.

The supervisor or manager will first provide help by coaching the team. If coaching support is not able to bring matters back into control the supervisor may choose to escalate to the next layer.

4.
1

STEP-BY-STEP

STEP	ACTION	RESPONSIBLE
D2	Go Look See	Problem Team Leader
	Set Priority	Problem Team Leader
D3	Effectiveness of ICA	Problem Team Leader, Management
D4	Confirm adherence to existing standards	Problem Team Leader
	Verify Measurement	Problem Team Leader
	Progress with 5 Whys	Problem Team Leader

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

		Ask for Help if needed	Problem Team Leader
		Start risk assessment of other products and plants	Core
	D5	Develop implementation plan	Problem Team Leader
		Identify potential PCA risks	Problem Team Leader
		Measure Expected Effectiveness	Problem Team Leader
	D6	Assess Actual Effectiveness	Problem Team Leader
		Removal of ICA	Problem Team Leader
	D7	Update FMEA	Core
		Update Process Documents	Core
		Update control plan	Core
		Update Maintenance Plan	Core
		Update Engineering Documents	Core
		Update STA lessons	Problem Team Leader, Core
		Lessons Sharing Card	Problem Team Leader

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

		Complete Risk Assessment of other product / manufacturing lines for compliance	Core
		Replicate	Core
	D8	Reflection	Problem Team Leader, Core
		Communicate Responsibility for Outstanding Compliance Actions	Core
		Final update to Official Problem Documentation	Problem Team Leader
	NOTE: 1) Detailed definition of each step listed in the table above is available in the appendix table at the end of this document 2) Official Problem Documentation updates are the responsibility of the Problem Team Leader.		
5.	LAYER 3		
5.1	OVERVIEW		
	<p>Layer 3 is the final line of defence, described in the table of deliverables as “Expert”. An appropriate expert will be added to the team. Problems will be solved in this layer principally by studying the problem at a fundamental level to determine the cause of the problem by experimentation. The expert has responsibility for specific deliverables detailed in the table below.</p> <p>The first actions of the expert will be to review problem definition evidence, find and analyse any additional evidence and go look see at the location the problem occurs. The problem team leader will use all problem definition evidence to determine priority and justify appropriate resources and people for the project.</p>		
5.2	STEP-BY-STEP		

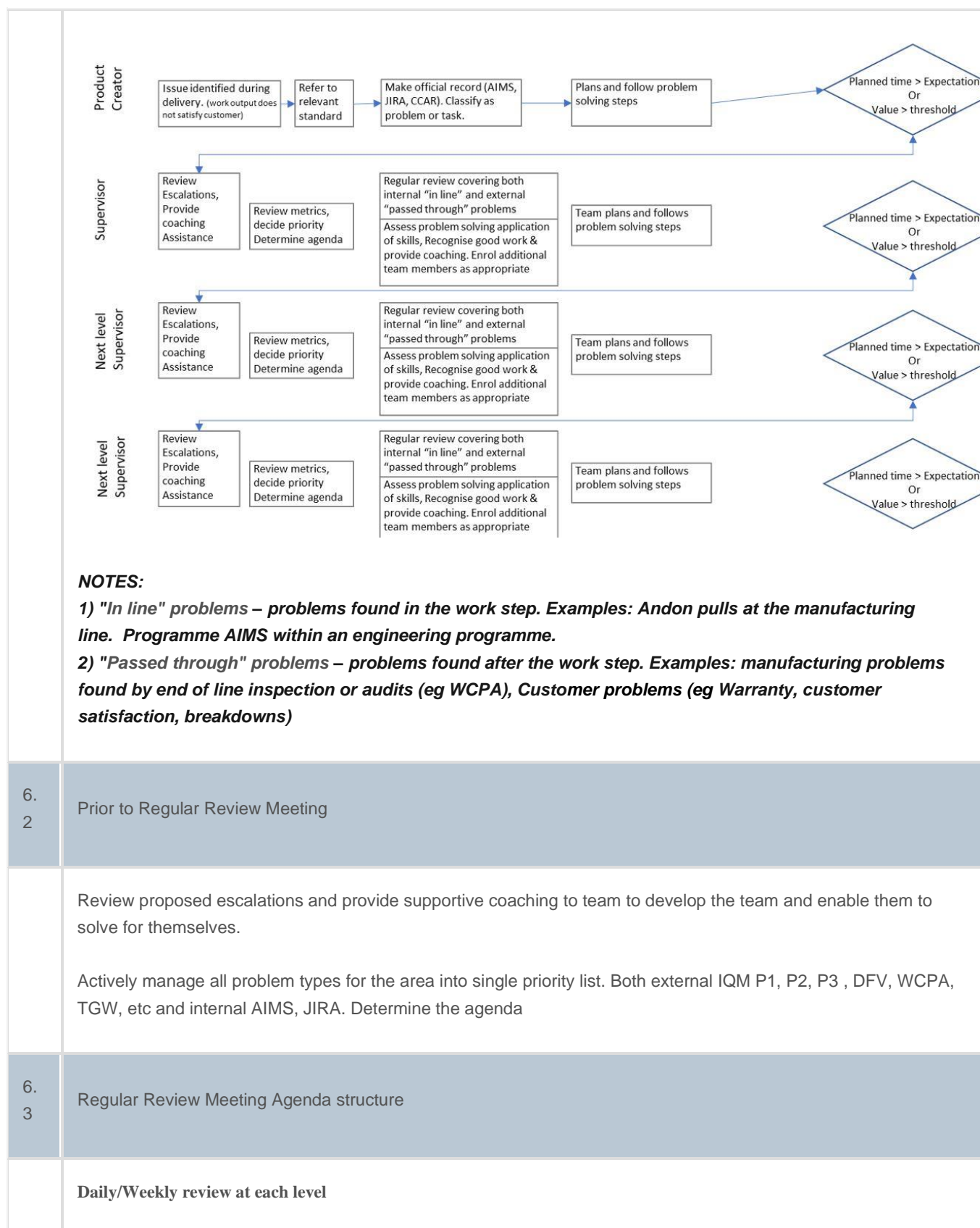
JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

STEP	ACTION	RESPONSIBLE
D1	Identify the people needed	Management, Expert
D2	Go Look See	Expert
	Additional Analysis	Expert
	Scope Decision	Management, Expert
	Establish Performance Standard	Expert
D4	Root Cause investigation plan	Expert
	Measurement System Analysis	Expert
	Problem Root Cause FTA	Core, Expert
	Escape Point FTA	Core, Expert
	Identify the systemic underlying cause	Core, Management, Expert
	Confirm Problem root cause contributions	Expert
D5	Review and Update Team	Expert

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

		Peer review of PCA improvement plan	Management, Expert
	D6	Peer review of PCA effectiveness using data	Management, Expert
	D7	Peer review of PRA implementation	Management, Expert
	D8	Address Organizational / Planning Root cause	Core, Management, Expert
	NOTES: 1) FTA = Fault Tree Analysis 2) Detailed definition of each step listed in the table above is available in the appendix table at the end of this document		
6.	REVIEW AND ESCALATION PROCESS		
6. 1	ESCALATION FLOW CHART		

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD



JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

	<p><u>New problems:</u></p> <p>Go look see. Go to Gemba, read the customer claims, Get the engineering open (view the CAD, parts, code or other). Review the evidence</p> <p>Decide the scope based on knowledge of similar problems</p> <p>Review and enrol team members appropriate to the problem</p> <p><u>Top10 (by priority & age) problems on rolling agenda:</u></p> <p>D3: Review ICAs</p> <p>D4: Review current problem root cause work and plan – Escalation/Help Required? Review quality system escape point, decide appropriate action & priority Review proposed solution to escape point</p> <p>D5,D6: Is team membership appropriate to the problem Review solution and evidence of effectiveness. Can it create a new problem (outcome of FMA) Review implementation plan</p> <p>D7: Review completed prevent recurrence – are we confident to be able to prevent / detect similar problems Review communication of learning to other products & work groups</p> <p>D8: Review compliance plan, escalate as required</p>
--	--

APPENDIX:

Detailed Definition of Steps

Requirements	Requirements, Expanded
Is it New	<p>Is it new Before opening - check history in the official JLR database - learn from past experience. Someone may have solved a similar problem before or may already be working on the problem.</p>

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

	(Example of this approach outside of JLR: YouTube videos show solutions for common household problems ... eg repairing a dripping tap, replacing a washing machine pump or changing a wheel bearing)
Record Problem	Record problem in official system (eg IQM) (Details: Warranty/Internal/Supplier/Logistic/Engineering/Safety, number/reference, date of notification, date of opening the problem.)
Initial Problem Statement	<p>Customer's complaint "verbatim" in their own words (area that identified the problem - contact name)</p> <p>Initial Problem statement by customer/area that identified the problem: 5W2H</p> <p>Safety/Regulation affected? Y/N</p> <p>Known/new problem?</p> <p>Process review - operator followed correct process, used correct parts, parts are correct, gather operator's comments.</p> <p>Supporting information: (What, When, Where, How big/many)</p> <p>Vehicle/Engine type</p> <p>Product/Part that suffered the problem - reference</p> <p>Product/Part SOP date</p> <p>Product/Part last modification date</p> <p>Pictures (good & bad from the same view point)</p> <p>Origin of the good part picture - to confirm same type of part/production period, etc.)</p>
	5W2H is a tool that provides guiding questions when assessing a process or problem. The five W's-who, what, when, where, and why, and the two H's-how big and how many - force you to consider various facets of the situation being analysed.
Emergency Response Action	<p>Emergency response action: what, who, when, phone extension, first VIN, date.</p> <ul style="list-style-type: none"> Establish how much product is affected Establish the severity of the problem (product function, safety, compliance) Decide what emergency response is appropriate. If it is a safety or compliance problem , also raise a grey alert and guidance will be given. Confirm the emergency response has been done.
Identify Leader, Handshake	Identify the Problem Leader , indicate function and contact details (email and/or phone). If unclear escalate.

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

Identify the people needed	Identify the people needed. (SIPOC is a good tool for this). Enrol the right team. For escalated Problems only: begin communicating to keep stakeholders up to date.
Form Team	Form Team , indicate also functions and contact details (email and/or phone) If MFG related - need to include associate/operator in the team
Complete Problem Definition	Complete problem definition from area of ownership, including: <ul style="list-style-type: none"> - 5W2H for area of ownership - photo of good & bad condition, same view point, showing the difference between good & bad - Was part/product produced in the standard process? - Other applications of that product/part - Detectability of the problem on normal process - New/known problem ? - Process map - What is the applicable performance standard - Process - can the problem be varied by rebuilding with the same part - Parts - can the problem be varied by swapping parts (does variation between parts influence) - Design - do the parts fit the e-cube (does the design actually work?) - IF THE PROBLEM IS ESCALATED - DEMONSTRATE THE PROBLEM IN THE WORKPLACE (BRING TO GEMBA)
Additional Problem Definition Analysis	Additional analysis of any other available internal and external data sources...QBAY, FLAGS, AIMS, VFDB, GCM, Data Lake, compare across plants, compare similar designs What: type of defect, product variant. When: Build date, Repair date (seasonality), process step, time in service (reliability/hazard, TIS stack) Where: Plant, Climate, Shift Predicted failure rate and annualised value
Go Look See	Go Look See. For External warranty problem : Share learning gained by reading a sample of problem / repair case studies. Analysis of returned parts. For Internal problem : visit the area to see the problem first hand.
Set Priority	Understand the evidence from all data sources, Set the priority of this problem. Manage position in the backlog queue, ensure resource is appropriate. (Decide to Escalate?). Ensure decision making authority is appropriate for the severity of the problem. (STA use a severity score and allocate team according to this)

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

Scope Decision	Scope Decision Refine the scope to encompass the WHOLE problem for Escalated problems only .
ICA Action Decision	<p>ICA action decision, including: Inform: Awareness to area of origin Action examples: Sorting activity, substitution, over-checking including:</p> <ul style="list-style-type: none"> • Identification used on parts/products inspected (if any) • First VIN number / batch number • Responsibility for action, date of implementation & where implemented • Temporary update to Process Documents (eg: JLR Manufacturing - Blue WES) • Control of Non-conforming material (eg JLR manufacturing -RIS) OR • ICA not possible <p>Based on understanding gained so far: Walking the process, completing the Is / Is NOT information it is now possible to consider ways of containing the problem. These should be quick (within 2 weeks), reversible and carry zero risk of creating a new problem. It is not necessary to have fully identified root cause. A Blue WES is a temporary Work Element Sheet describing the procedure for the production operator. A RIS is a Rework Instruction Sheet which instructs how to re-work non-conforming material.</p>
Effectiveness of ICA	<p>Effectiveness of ICA (using "in-house" measure), results (all areas affected): total checked & number of NOK</p> <ul style="list-style-type: none"> - Internal rejection rate (defect related) - Learning from sorting activity (what proportion found) - Learning from any previous similar problem <p>Validation of ICA by Area manager/Quality manager (escalated/critical problems only)</p>
Control of non-conforming material	Control non-conforming material - Ensure control of non-conforming material is robust
Confirm adherence to existing standards	<p>Confirm adherence to existing standards: MFG, parts, design for both occurrence & escape (FTA tool).</p> <p>Owners of each escape identified (process owners)</p>
Establish Performance Standard	Establish Performance Standard Confirm or refine or define the performance standard in SI units that will satisfy the customer. "How good is good enough?"

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

Reproduce Customer's Problem	Verify Measurement. Reproduce the customer's problem in a repeatable way - Standard Operating Procedure for the measurement
Progress with 5 Whys	Progress with 5 Whys for both the problem occurrence & the escape point that should have prevented or detected the problem
Ask for Help if needed	Ask for help if needed. If no potential root cause found - escalate for additional support (new members added to the team) to continue looking at other existing standards and/or consider additional root cause analysis skills and technical expertise.
Root Cause investigation plan	Root cause investigation plan (escalated/critical problems only)
Measurement System Analysis	Measurement System Analysis. Reproduce the customers problem in a repeatable way - Use statistical analysis to quantify the measurement error.
Problem Root Cause FTA (Fault Tree Analysis)	Problem Root cause FTA: Detailed process map (as appropriate: manufacturing process / system operation / failure mechanism) identify and prioritise potential variables and theories.
Escape Point FTA (Fault Tree Analysis)	Escape Point FTA: Draw the timeline of events to identify potential Escape Point(s) in the quality system (the step which should have prevented or detected the problem , but failed to do so). Document the escape point in the official database (IQM / Enovia)
Systemic Underlying Cause	Identify any Systemic Underlying cause, Review the situation of the people working when the problem was created. For example organizational design, skills management, clarity of responsibility, cultural issues, etc. Was a role missing or the person unable, overloaded or unaware of responsibility for Escalated problems only.
Confirm Problem root cause	Confirm problem root cause evidence attached. Prove the problem can be switched on and off.
Start risk assessment of other products and plants	Start the risk assessment of other affected vehicle lines, plants, etc and estimate the technical debt rating. (Technical debt = severity x occurrence x volume)

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

Confirm Problem root cause contributions	Confirm Problem root cause contributions: Quantify the contribution of each root cause and review that the causes sufficiently explain >70% of the problem.
Develop PCA	Develop PCA for both Problem and escape point. Ensure both occurrence & escape are covered.
Review and Update Team	Review and update Team Membership. Involve new people as needed to make the change.
Develop implementation plan	<p>Develop implementation plan. Consider staged introduction (eg: service / production). Include responsible name for every action, due date of implementation.</p> <p>If the PCA solution is novel, or has any suitable JLR IP that is worthy of protection, then consider a patent.</p>
Identify potential PCA risks	<p>Identify potential risks that the solution might create (FMA* tools as needed)</p> <ul style="list-style-type: none"> Consider the existing application of the system/item/process you are looking to change. Consider what the functions are of the system/item/process you are changing and how might they be affected. Consider the interfaces of the system/item/process for further implications. <p>*FMA - Failure Mode Avoidance, see:</p> <ul style="list-style-type: none"> JLR-PRD-117485 Failure Mode Avoidance (FMA) Statement of Work JLR-MNL-544514 Technical Risk Management - Failure Mode Avoidance Manual JLR-MNL-559853 Customer Level Risk Management- Failure Mode Avoidance JLR-LWI-549586 Design Review Based on Failure mode (DRBFM)
Measure Expected Effectiveness	Measure Expected Effectiveness of the PCA (using small scale pilot / lab trial / detailed simulation)
Peer review of PCA improvement plan	Manager Validation of PCA implementation plan by experienced Area manager / Quality manager (escalated/critical problems only). Update and improve the plan. Example improvements might be: Inclusion of key team members and stakeholders, parallel working, managed risk, etc.
Implementation Date and VIN	Actual Implementation Date and VIN. 1.- Real dates of implementation of actions and first VIN

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

Implement the PCA	Implement the PCA
Assess Actual Effectiveness	Assess Actual effectiveness from implementation of actions (5 days, 10 days and up to 1 month after implementation). Vs expectation. (Each Action owner)
Removal of ICA	Removal of ICA if PCA is effective
Peer review of PCA effectiveness using data	Manager Validation of PCA implementation by Area manager / Quality manager (escalated/critical problems only) - look for data before / after, feedback comments from associates, customer impact, impact on the team.
Update FMEA	Update FMEA Product/Process/Logistic/Facilities FMEAs
Update Process Documents	Update Process documents (MFG...GSPAS, QPS, WES)
Update control plan	Update control plan
Update Maintenance Plan	Update maintenance plan
Update Engineering Documents	Update Engineering Documents (Requirements, STJLR, DRJLR, TPJLR, BoD/BoP, AVA, DFMEA (eg. Complete work on PR AIM)
Update STA lessons	Update Manufacturing Site Assessment Lessons Learned
Training	Training - Inform / Reinforce Standard Procedures. Train and check understanding, update skills records.
Lessons Sharing Card	Lessons Sharing Card 6.- Finalise problem summary document from the key evidence. (Create Lessons learned card to share)

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

Review PCA for permanence	Review PCA for permanence Follow up after implementation of PCA - 1 month max - Gemba go look & see (escalated/critical problems only) by Area manager / Quality manager
Complete Risk Assessment of other product / manufacturing lines for compliance	Complete Risk Assessment other product / manufacturing for compliance to the updated standard. Complete the technical debt rating (severity x occurrence x volume).
Replicate	Replicate countermeasures to other products / manufacturing lines.
Peer review of PRA implementation	Manager Validation of PRA implementation by Area manager / Quality manager (escalated/critical problems only). An independent review of the effectiveness of documents updated and actions taken. Example outcomes: remove ambiguity from documents and specifications, inclusion of stakeholders, improved communication of the case for change, improved support to justify the case for change.
Give Recognition	Give Recognition Congratulations to the team for specific work done well by each person.
Reflection	Reflection Gather the team to reflect on the problem and on the project. Capture all learning. Identify team members for future development.
Address Systemic Underlying cause	Address Systemic Underlying cause. (for Escalated problems only). Make written recommendations to that address the situation of the people working in the area where the problem was created. For example organizational design, skills management, clarity of responsibility, cultural issues, etc. Was a role missing or the person unable, overloaded or unaware of responsibility? The relevant senior leader(s) shall include appropriate action(s) in transformation or continuous improvement plans.
Communicate Responsibility for Outstanding PRA Compliance Actions	Ensure appropriate groups are aware of their responsibility to complete Outstanding Compliance Actions. Review feedback from other products / manufacturing lines on compliance to updated standards and learning. Implementation plans, dates, responsible names. Escalate blockers.
Official Problem Documentation	Update Official Problem Documentation (Local, IQM, AIMS, PR AIMS), Approval

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

CONCURRENCE - V1.0

Name	CDSID	Function	Role	Role Code	Consultation Participants
Julie Stears	JLIDDLE	Product Engineer	Chief Engineer, Engineering Quality	EQ	asherrat
Andrew McLure	AMCLURE1	STA	Global STA Director	PS-5	amclure1
Dave Adkins	DADKINS	Manufacturing	Manufacturing Quality Director	TS-5	cmcnamar
Stephen Oldham	SOLDHAM2	Customer Service Quality	Global Customer Service Quality Director	MS-4	ashenton
Danella Bagnall	DBAGNALL	Quality Programmes	Vehicle Programme Quality Director	AQ-4	jallen14
Paul Horner	PHORNER	Quality Programmes	Vehicle Programme Quality Director	AQ-7	jallen14
Kim Ballamy	KBALLAMY	Quality Programmes	Vehicle Programme Quality Director	AQ-3	jallen14
Simon Dudley	SDUDLEY3	Quality Performance	Quality Performance Director	AQ-2	jallen14

JLR-STN-56258, ISSUE LEVEL 3.3
PROBLEM SOLVING STANDARD

APPENDICES

Appendix 1: Other Translations

- English (Master)

Appendix 2: Variations

There are no other variations available for this document.

Appendix 3: Waivers

There are no waivers for this document.

Appendix 4: Internal Controls

No internal controls apply to this document.