

# AAR/RSI QUALITY NEWSLETTER

Volume 8, 4<sup>th</sup> Quarter 2018

## INSIDE THIS ISSUE

Page 1 –The Missing Pieces –  
Part 3: Engagement

Page 2 – Views &  
Interpretations

Page 2 – Repair and Shop Track  
Inspection and Repair Process

Page 4 – Nondestructive Testing  
Basics

Page 7 – Calendar of Events &  
Important Links

## THE MISSING PIECES – PART 3: ENGAGEMENT

Submitted by Bob Wolbert – Progress Rail

Many scholarly articles are available for our review at the touch of a few keys. As quality professionals, the level of engagement our employees possess has a direct impact on the quality of the goods and services our companies provide. In our previous discussion of Missing Pieces, we left off with Part 2 Visual Management (VM). VM is the ongoing routine to communicate our goals and our performance relative to them. More importantly, VM is a conversation starter to provoke input from the persons closest to the activities we perform. They are the resident experts in many cases we leave untapped. VM is a process aimed at communicating effectively by encouraging the employee's interaction in goal attainment or improvement. We can state broad goals, but will be more successful when we focus on priorities in the form of specific areas for improvement.

So let's talk about engagement, which is often misunderstood or not clearly defined. Some might say engagement is demonstrated when employees come to work each day on time. Yet others have a deeper and more developed understanding of engagement. Maybe a good way of explaining engagement is simply pointing out management practices that encourage engagement.

- Embraces improved communication with employees to provoke involvement by providing key performance indicators and their corresponding goals (VM)
- Regularly uses this information in a group setting such as shift meeting / tool box meeting which may deal more specifically with the challenges within a department in an effort to garner two way communication
- Notes and takes action on ideas generated.
- Follows through on opportunities from employee surveys and keeps them visible with respect to actions taken
- Recognizes employee contributions / performance through simple but effective means. (Employee of the month, company newsletter articles, recognition and small gifts as a memento presented in group settings, etc.)
- Celebrates successes – Lunch and learn opportunities for the team
- Top management participation in group meetings as well as specific points of contact to recognize employees going that extra distance
- Employees participate in work cell configuration and tooling decisions
- Provides a path for skill level / position advancement for employee career progression
- Supports employee participation in community projects

If we are successful in engaging our employees, they will become keenly aware of how their performance impacts company, and specifically, their team's performance. This in turn creates the sense of purpose and wellbeing that influences behaviors which results in improved safety, quality, production, attendance and reduced employee turnover.

## **VIEWS AND INTERPRETATIONS**

**Q:** Can more than one location be included in an AAR M-1003 certification?

**A:** Per section 1.8.2 of the M-1003 standard: Separate applications are required for each separate facility manufacturing and/or reconditioning covered components, regardless of common ownership or control of those facilities.

**Q:** Is it necessary to keep an internal audit checklist and notes after an internal audit report has been issued?

**A:** Per Appendix C, section 21.3 of the M-1003 standard: A completed checklist is one that has checkmarks (or other notations) that indicate an element was audited and notes that describe what you looked at and what you found. The notes do not have to be on the checklist but they need to exist and should be filed with the checklist.

## **REPAIR AND SHOP TRACK INSPECTION AND REPAIR PROCESS**

Submitted by David Barczak – Progress Rail

The AAR requires a number of inspections / activities to be performed when a car is on a shop or repair track, which requires preparation by reading all the applicable Field Manual rules. *Why? Because at this time there is an environment to safely and thoroughly inspect and repair items on a car without causing delays.*

*A repair track is also a designated area where specialty equipment, gauges & OEM publications, etc. are available to assist in making the required repairs.* There are a number of reasons why these inspections and tasks are important. Safety for the personnel handling these cars in addition to the safe conveyance of the railcar's contents is the primary concern, in addition to providing the maintenance required that prevents service disruptions. For those reasons, repair or shop tracks are tasked with repairing defects under section A.1 (condemnable at any time) and A.2 (when on a repair or shop track) of the rules.

For these reasons and the examples provided below, training should be supplemented with detailed checklists and processes to ensure

## **Have a Question?**

Submit your M-1003 request for clarification or interpretation by emailing [QA@aar.com](mailto:QA@aar.com).



## **Have an Idea for an Article?**

Please submit your drafts to Donna Jacobi at [djacobi@amstedrail.com](mailto:djacobi@amstedrail.com) or Gary Alderson at [alderson@alltranstek.com](mailto:alderson@alltranstek.com).

## **Reminder**

Per Section J, 1.1.3 “An AAR official representative shall have free entry at all times to all parts of the contractor's works that concern the processing, test, and inspection of materials for use in interchange service. This access is for the purpose of providing assurance that industry standards are being maintained. The contractor shall afford the AAR representative all reasonable facilities to ensure that materials are being furnished in accordance with the specification”

compliance to the applicable AAR rules. The activities below represent pre-emptive measures to prevent disruption of service or safety issues.

- **Railinc Activities** – addresses industry alerts for maintenance and component removal
- **Wheel Set Activities** – prevents failures by removing wheels with higher rate of failures
- **Brake Related Inspection /Repairs** – prevents undesired emergency brake applications and preventable wheel wear
- **Truck Inspection & Repair** – Minimizes service disruptions and addressing issues affecting performance
- **End of Car Components** – Prevents damage to car lading and prevents service disruptions
- **Miscellaneous** – Includes items such as door inspection and lubrication, trailer hitch repairs, center plates, etc.

#### **Railinc Activities:**

EHMS (Equipment Health Management System) provides information such as Single Car Air Brake Test Due Dates, Wheel Impact Load Detection alerts, Acoustic / Thermal bearing alerts, Truck Hunting alerts, Early Warning /Maintenance Alert issues, etc. It is recommended that Railinc queries are performed as soon as practical when car is on a shop or repair track.

#### **Wheel Set Activities:**

In addition to the Railinc items above affecting wheel sets, the AAR Field Manual identifies wheels and their conditions as listed in Rules 36, 41, and 90 are identified for removal when found. All of these wheels present a higher likelihood of failure.

#### **Brake Related Inspection /Repairs:**

Cars due for a single car air brake test are identified via Railinc alerts and the EHMS (Equipment Health Management System). Additionally, cars with conditions stipulated in Rule 3 chart A are required to have an SCABT. Beyond the single car air brake test, there are numerous brake system components that must be checked in accordance with AAR Field Manual Rules. Here's a list of some of the required items to inspect and repair if required: piston travel adjustment, piston travel indicators repair, slack adjusters on tank cars must be changed to Group R, check hose dates and replace as needed, hand brake inspection and lubrication, end hose and trolley arrangement inspection and repair, brake rods and their carriers, brake beams, bottom rods, safety supports if required, brake shoes and the list continues....

#### **Truck Inspection & Repair:**

Truck inspection & repair activities can be a bit complex to understand as there are aspects that require requesting HOME SHOP disposition from the car owner or to seek approval to apply like design components that are available. Home Shop disposition must be sought out when car is on shop or repair track when there is no visible evidence of defects that would make friction shoes ride high according to the prescribed gauges in Field Manual Rule 46. Other truck conditions that require attention/ repair are as follows: broken, excessively worn or missing friction castings; bolster / side frame Prohibited by AAR Field Manual Rule 90, broken or cracked; bolster bowl conditions i.e. rim condition, liner(s) condition(s), diameter & depth dimensions; bolster pocket and side frame column guide wear plate(s) excessively worn, broken conditions or missing when not by design; bearing adapter conditions require additional inspection anytime wheel set is removed; journal roof wear and roof liner conditions that also require inspection when wheel sets are removed; truck / body side bearing conditions; and the list continues.

### **End of Car Components:**

There are a number of activities required pertaining to the end of the car when car is on shop or repair track. One activity that is commonly overlooked is lubrication of the coupler carriers for cars with long shank couplers that also have a metallic coupler carrier wear plate(s). Other key things to look for, does the car have the proper Y-47 pin retainers? Depending on the type of support bracket, it may be a pin or a bolt. Be sure to access AAR Field Manual Rules 17 & 18. Rules 16, 17 & 18 list a number of coupler components that are to be renewed. Commonly overlooked are adding uncoupling lever bracket fillers to brackets for non-telescoping uncoupling levers to ensure the lever may travel freely as cars move through curves. These are just a few and there are still several items.

### **Miscellaneous items:**

We have included this category to touch the other items that did not fall into the previous buckets. AAR Field Manual Rule 60 provides criteria for inspection & repair of center plates with there being differences in clearance conditions that are condemnable at any time versus clearances condemnable on a shop or repair track. AAR Field Manual Rule 77 requires inspection and lubrication of doors on empty box cars. For sliding doors any time car is on a repair track. For plug doors lubrication is not required when door exterior is stenciled and the date is within the last 12 months, or it is a non-lube type plug door. AAR Field Manual Rule 65 stipulates, "When on a shop or repair track, all hitches including those with Bad Order Hitch Identification Devices must be repaired, or Home Shop disposition requested".

## **NONDESTRUCTIVE TESTING BASICS**

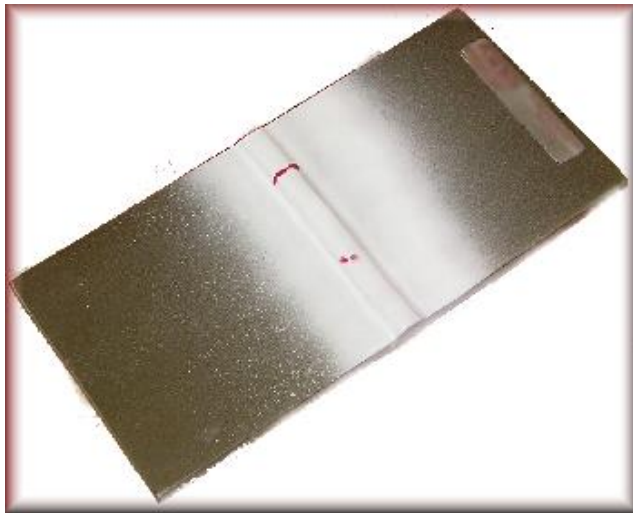
Submitted by Gary Alderson – AllTranstek, LLC

Some call it nondestructive testing (NDT), other industries refer to it as nondestructive examination (NDE) and another industry may refer to it as nondestructive inspection (NDI). Regardless of the acronym used, the outcome is the same. NDT, NDE, or NDI accomplishes testing, examination, or inspection, of an item or component using various methods and techniques with the end result providing valuable information about the component without damage. In direct contrast to nondestructive testing, is destructive testing. Destructive testing such as tensile (elongation) testing of steel or compression testing of concrete for bridge and road construction results in a test that destroys the component being tested but provides valuable information about the component, or material.

### **Definitions:**

- Defect – When a discontinuity exceeds the acceptance criteria it is considered a defect and must be scrapped, removed from service, or repaired and reinspected using the same NDT method and technique.
- Discontinuity – A distinct break in the physical continuity that may or may not exceed the acceptance criteria. As an example; gas (porosity) or slag is considered a discontinuity when welding processes are used.
- NDT method – the major method of a nondestructive discipline such as Liquid Penetrant Testing.
- NDT technique – a process that is associated with the major method but only requires a portion of the major method. For example; the solvent removeable technique is part of the major liquid penetrant test method.

Visual Testing (VT) The most useful and economical nondestructive testing method is direct visual inspection. Direct visual inspection refers to weld inspection and, in some industries, it may refer to the surface inspection of valves and castings or other components that require certified personnel to perform quality assurance inspection as required by the NDT procedure. A technique of the method, remote visual inspection refers to the use of flexible fiberscopes or videoscopes to inspect welds that are not readily accessible. All NDT inspections of welds start with visual inspection. This is purposely done and sometimes is required by the NDT procedure so visible discontinuities can be addressed prior to subsequent NDT being completed.



Penetrant Testing (PT) Some people get this acronym wrong by using the letters LPT for liquid penetrant testing. The correct acronym per ASNT is PT, for penetrant testing. This method encompasses a variety of techniques using different penetrants, developers and removers to accomplish the inspection of discontinuities that are open to the surface. PT is one of the most mis-used NDT methods because proper cleaning of the surface is critical to finding discontinuities. The area inside the discontinuity may be contaminated with water, oil, acids, or other chemicals that require special cleaning to remove them from the discontinuity to allow the penetrant to enter the discontinuity through capillary action. After proper removal of excess penetrant and dwell times, capillary action draws the red dye into the white developer

layer to provide a high contrast image of the discontinuity. If the area inside the discontinuity is not properly cleaned, or the procedure is not followed properly concerning dwell times and evaporation times the penetrant cannot enter the discontinuity as required and the sensitivity of the test is affected.

Magnetic Testing (MT) Another acronym that people get confused with is MT. Some refer to it as MPT for magnetic particle testing, but magnetic testing covers many techniques and is correctly identified as MT per ASNT. Similar to PT, this method can detect discontinuities open to the surface by applying an Alternating Current (AC) magnetic field to the component and then applying iron particles to identify new north and south poles in the component. These new north and south poles are caused by cracks or other flaws in the component. Some slightly subsurface discontinuities can also be located if the new poles are aligned properly to attract the iron particles and Direct Current (DC) is used.

Since magnetic properties are involved, MT is limited to ferrous (iron) based materials.



### Ultrasonic Testing (UT)

Ultrasonic Testing has many uses for weld inspection, plate inspection, and other components regardless of the type of material they are composed of. Sound energy that is above the human hearing range is injected into the component to look for discontinuities. If an anomaly is found, the sound energy is returned to the transducer and a signal is displayed that provides the location of the discontinuity in the weld or component. This method requires a higher skill level and more training than other NDT methods. Access is only required from one side of the object.



Ultrasonic Thickness Testing (UTT) Ultrasonic Thickness Testing is used to calibrate to a known thickness of any material and the ability to check the thickness anywhere on the component. This technique is used extensively for checking the remaining thickness of the tank car tank shell.

Radiographic Testing (RT) Radiographic Testing is still in use today, but most companies that still use it have gone to digital radiography. The manufacturer's of x-ray film have indicated that the process of manufacturing x-ray film will soon be obsolete. Ultrasonic Testing, especially phased array UT, has been slowly replacing radiography. Radiography uses either an isotope or an x-ray machine to produce the gamma rays or x-rays respectively which are passed through the component to be captured on the x-ray film on the other side. An image is formed through photon action and more radiation passing through thin areas causes darker areas on the film, and light areas on the film are caused by thicker sections that prevent radiation from reacting with the x-ray film. The latent image formed on the film inside of special cassettes is processed and interpreted. Radiography can be performed on any material, although high density materials can be difficult to inspect. A higher skill level is required for radiography. One limitation of RT is that access is required to both sides of the component or object so the film can be placed on one side and the radiation source on the opposite side.

## **Be sure to register for the AAR Quality Assurance Auditor and Industry Conference!**

The conference is in New Orleans on January 22 – 24. Click on the following link to register:

<https://aar.configio.com/>

Some of the conference highlights will include:

- Root Cause Analysis Tools
- M-1003 Audit Findings and Best Practices
- Statistical Process Control/ Statistical Methods
- AAR Committee Updates
- FREE Workshops for All Attendees, including:
  - AWS D15 Welding Requirements
  - How to Write an M-1003 Quality Manual
  - How to Write a Quality Procedure



## CALENDAR OF EVENTS AND IMPORTANT LINKS

### 2019 Calendar of Events

Training	Date	Location
<b>AAR Quality Auditor and Industry Conference</b>	January 22-24	New Orleans, LA
<b>Basic Auditor Training</b>	February 26-28	San Diego, CA
	April 23-25	New Orleans, LA
	June 18-20	Virginia Beach, VA
	July 16-18	Colorado Springs, CO
	November 5-7	Orlando, FL
<b>Advanced Auditor Training</b>	March 26-28	Vidor, TX
	June 4-6	El Dorado Hills, CA
	September 10-12	Pueblo, CO
	October 8-10	Topeka, KS
<b>Root Cause &amp; Corrective Action</b>	April 10-11	Chicago, IL
	June 11-12	Denver, CO

An AAR Circular Letter will be issued several months prior to each class announcing when registration is open

### Important Links

[Registry of M-1003 Certified Companies](#)

[M-1003 Frequently Asked Questions](#)

[AAR M-1003 Certification on-line Application](#)

[AAR M1003, Section J Specification for Quality Assurance](#)

[AAR Training Schedule](#)

[AAR Circulars](#)

[MSRP Publication Current Revision Status](#)

[AAR Online Material Nonconformance Reporting System \(Chapter 7\)](#)

[Railway Supply Institute](#)

[RSI QAC & Previous Newsletters](#)

[RSI Tank Car Resource Center](#)

**The AAR /RSI Joint QA Newsletter is provided through the efforts of AAR Quality Assurance Committee and Railway Supply Institute Quality Assurance Committee members in an effort to provide information that is important to our industry in support of improving the quality of products and services provided. You can support this process by submitting your questions and ideas for improvement to [QA@aar.com](mailto:QA@aar.com).**

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