



S.16 Service Provider Study Group Information Report: 2020-1

Recommendations Regarding Implementing TMC Recommended Practices by Service Providers and Fleets

Developed by the Technology & Maintenance Council's (TMC)
S.16 RP Implementation Task Force

ABSTRACT

Knowledge of TMC and its body of work varies greatly among fleets and service providers, depending upon their involvement in the Council. A systematic process for leveraging TMC's Recommended Practices (RPs) would benefit maintenance operations for commercial motor vehicles. This Information Report provides a basis for selection and implementation of TMC RPs that are relevant to a particular operation and for measurement of the return to that organization by giving examples of methods used successfully by members of TMC.

INTRODUCTION

This Information Report discusses methodologies that maintenance service providers and fleets of medium- and heavy-duty commercial vehicles may consider for the implementation of any TMC RP pertaining to business process, spec'ing or technical/troubleshooting procedures.

ways and means for leveraging and applying TMC RPs will vary depending on the type of RP that is designated for implementation.

When a service provider or fleet operation seeks to use an RP that addresses business processes or spec'ing practices, a series of steps are most likely necessary for its successful implementation, similar to any recognized process improvement model. For other types of RPs, such as technical/troubleshooting procedures, implementation will additionally require such key elements as management focus/support, access and ease of use by maintenance personnel in order for the selected RPs to be utilized and beneficial.

BACKGROUND

A systematic implementation process for any TMC RP should enable a service provider or fleet operation to more quickly apply and benefit from the formalized compilation of knowledge and experience of TMC and its members in TMC's *Recommended Practices Manual*. The

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TMC anticipates that the information presented in this report will evolve over time, and may at some point spur development of a TMC RP in its own right. The evolution technology will also facilitate access to and use of TMC RPs.

This report focuses on ways leaders in service providers and fleets can help their organizations realize immediate benefit from the knowledge, experience and best practices that is captured in the TMC RPs. Several examples of processes currently used by TMC member companies used to illustrate the methodology outlined below.

IMPLEMENTING TMC RPS USING BASIC CONTINUOUS IMPROVEMENT METHODS

Many process improvement models exist today. Some are easier than others to leverage and some take a true investment of time and resources. The following describes some basic steps service providers and fleets, regardless of the size of the organization, can undertake to prioritize which TMC RPs to implement quickly for near-term benefit.

Step 1: Define

Defining the business problem is key in RP selection and ultimately the results that can be measured after implementation.

With so many TMC RPs available and with time as a limiting resource, it is important to prioritize opportunities within a specific operation to become more efficient, lower costs or improve quality. Depending on the organization's culture, the objective in selecting the first RP for implementation may either be to achieve a "quick win," or alternatively, to maximize the return for the operation. Regardless of which objective is selected, the following example illustrates an actual successful implementation of TMC RP 129B, *Heavy-Duty Vehicle Cranking And Charging Troubleshooting: 12-Volt Systems* that was accomplished by a TMC member company:

Example of Step 1 — How to Define the Business Case for Implementing an RP.

The following is an actual process followed by a TMC member company:

- **Business problem:** A high percentage of "no start" faults is identified for starter brand/model X.
- **The activity which will improve this problem:** To identify and follow a procedure that aids in the troubleshooting of the root cause at time of diagnosis.
- **The opportunity for improvement:** To lower costs through determination of a root cause.
- **The program goal:** To eliminate the no fault found category in the warranty recovery process.

Step 1 involves determining where to focus resources for the first implementation of a TMC RP. Is a quick, early win desired, or is the objective to identify the biggest opportunity for improvement? Here are just a few ideas of how to arrive at a decision point:

- Pareto analysis of the most costly jobs (i.e. efficiency, recovery) performed during a specified period.
- Pareto analysis of highest cost breakdowns experienced during a given time frame.
- Polling technicians to identify areas where more support is needed.

Step 2: Measure

Measurement is a key step both when deciding where to focus resources first and when determining if the new process, or process re-design resulting from implementation of a TMC RP produces the desired effect.

Quantitative data is necessary in determining where to start. Similarly, after implementation of an RP, data will measure the impact of the change. Data will be key in securing stakeholders, resources and the desire to sustain the change.

Example of Step 2 — Measurements to evaluate impact of RP implementation.

The following were the actual measurements recorded by a TMC member company:

- **Beginning Warranty Claim Rejection Rate:** 37 percent
- **Measurement Post Improvement Plan Implementation:** “By the end of the first quarter after launch, we reduced our rejections from 37 percent to five percent, and moving into second quarter and thereafter our rate was 1.04 percent.”
- **Improvement:** 35.96 percent.

In this example, it was evident that implementation of TMC RP 129B quickly and effectively had the desired impact on this fleet’s operation. The quantifiable improvement not only justifies the time, effort and resources of implementing, but further supports the need to ensure that use of the RP is incorporated into the company’s training documents, and is made easily accessible to all related personnel.

Step 3: Analyze

Analysis of the performance of a company’s processes is the activity that will lead to identification of root causes of variation in those processes. Analysis provides the rationale for improvement or redesign in addition to identifying the critical defects contributing to the poor, or undesired performance. This step may involve graphical, statistical and process map analyses. While some of the process improvement models that exist utilize complex analysis tools, even some basic ones will prove helpful in this endeavor, such as in the example:

Example of Step 3 — Points of analysis in support of an RP implementation process.

The following were the points of analysis used by the TMC member company in the starter case example:

- **Establish the baseline** by determining the percentage of “No Fault Found” rejected warranty claims against total warranty claims filed.

- **Require traceability** of warranty claim to Repair Order (RO). The RO should record technicians’ results for each diagnostic step and test result values where applicable.
- **Begin monitoring** all starter warranty claims on quarterly basis and calculate “No Fault Found” as a percentage of all claims filed. Any “No Fault Found” claims per quarter should be used as a tool to reference back to the RO and analyzed to establish further areas of improvement.
- **Continue monitoring** and establish percentage on quarterly basis. Share results with vested parties.

Analyze the data to understand the magnitude of the contribution of each root cause to the problem. It is the outputs of **step 3** that lead to the inputs of either a process redesign, or the Improve Step.

Step 4: Improve

Improve is the step in the process where a company identifies, conducts trials and implements improvements to their process. For an organization operating or servicing medium- and heavy-duty commercial vehicles, TMC RPs provide the opportunity to draw upon the experience and expertise of the leading peers from engaged and successful businesses in the industry. This saves a company considerable energy and resources in identifying the best practices in the industry, facilitated greatly by membership in TMC which provides easy access to and the ability to peruse TMC’s library of RPs.

Maintenance leadership within each respective company, after defining the business problem and what improvements are sought, should then identify the TMC RPs best suited to help with the improvement efforts.

NOTE: The current TMC *Recommended Practices Manual* is accessible by all TMC members (an individual-based membership) on

the Council's online community, TMC Connect, at <http://tmcconnect.trucking.org/tmclibraries/newrplibrary> via protected PDF documents.

RPs can be circulated within the company, or can be accessed by anyone in the company through purchases of additional memberships, purchases of single-user RP Manuals (print, CD, online) or a corporate multiuser license. Once proven successful, RPs can be integrated into the company's training procedures. The task of researching and identifying relevant TMC RPs is best performed by maintenance leaders within their organizations who are active members of TMC and take part in TMC meetings and the RP development process.

Example of Step 4 — Discussion of TMC RP Used For Performance Improvement.

The following is discussion related to the applicability of the TMC RP selected by the company in the case cited above:

- **Maintenance performance improvement.** Examination of TMC RP 129B shows a best practice diagnostic sequence for identifying and correcting a starter problem. The diagnostic procedures were adopted, taught and implemented at each Maintenance facility. Monitoring of warranty claims over time and the rejection rate became a measure of success in implementation, or the need for "tweaking" of training. Having a defined diagnostic sequence provided valuable insight on perceived problem "No Start" versus actual root cause of problem "low battery," "loose cable," etc. This allowed for utilizing the best practices in RP 129B as a guideline for a requirement to provide a vehicle electrical specification in requests for future vehicle suppliers, further reducing the variables leading to "No Fault Found."
- **Spec'ing and pilot verification process improvement.** In addition to benefits provided on the maintenance side, by using a standardized testing procedure

when a starting problem occurred, the fleet used in the starter example was able to compare root cause complaint — i.e., "slow cranking" versus actual cause "excessive voltage drop in battery disconnect switch." This was the direct result of having a best practice to test the complaint against and led to writing the vehicle specifications requiring the supplier to supply a vehicle that exhibits and passes the requirements of the diagnostics outlined in the RP (i.e., "The vehicle charging and starting circuit shall comply with the voltage drop standards outlined in TMC RP 129B.").

Step 5: Control

Control is the step in the redesign of processes whereby an organization creates a plan to ensure that the gains realized in the first steps continue. Monitoring improvements by using the reporting tools available, and updating company procedural documents (e.g., training materials, process handbooks, and the like) are recommended actions during this phase.

RP ACCESS FOR USE ON THE JOB

As mentioned in the introduction, many of TMC's RPs are technical in nature, designed for troubleshooting or routine maintenance. The five steps outlined for a full process implementation, may not be necessary in these cases. Instead, RPs that address procedural practices are most easily implemented simply by placing them at the fingertips of the personnel in service provider and fleet operations who need them. There are three key aspects to consider when leveraging TMC's RP manuals for this purpose.

Management's Role and Support

In order for personnel within service provider and fleet operations to use and benefit from TMC's RPs, those representatives from their companies who attend TMC's meetings and participate in the Council should take the lead to create an awareness of the TMC RPs. Communication and education about the work done

at TMC is a critical first step. TMC Connect is a valuable tool to assist the organization's management in previewing the resources available to their repair and maintenance professionals. Today's maintenance team can search for what they need within a complete, index PDF file version of TMC's *RP Manual* that is accessible on TMC Connect (<http://tmconnect.trucking.org/tmclibraries/newrplibary>).

Beyond this initial awareness, management should create a work environment that reinforces the availability of TMC RPs and the role they play in betterment of the industry, illustrated in the following examples:

- Providing access to TMC RPs on the shop floor.
- Conduct RP focus session during morning stand-up meetings.
- Inclusion of the available RPs in company internal communications.
- Use of TMC RPs in company training documentation.

Awareness Best Practice: One fleet member of TMC shared that during their 15 minute pre-work communication meetings, which always begin with the topic of safety, a technician is selected monthly to discuss his/her best practices pertaining to access and use of TMC RPs. This member expressed that most times this type of information is best received when coming from a fellow technician. The goal of these technician testimonials is allow more technicians to see how TMC RPs can make their jobs easier, add quality to their work and increase their knowledge. This fleet encouraged their competitors in the National Technician Skills Competition (TMC SuperTech) to take initial lead in this activity.

Ease of Access

Individuals tend to use those tools and resources most easily available to them, especially when needed to perform a task or duty. TMC has been working to improve ways in which our industry can draw upon the value

contained in the RP manuals. In order to broaden access to and use of the manuals within member organizations, TMC also retails an multiuser enterprise solution providing a single point of access for all employee/users in the organization. For more information on ordering, please contact ATA Business Solutions 703-838-1700; 866-821-3468 (Toll-free) or <http://www.ATABusinessSolutions.com>.

Access Best Practices

TMC members have shared these creative ways to put TMC RP information into the hands of their staff:

- Conversion of TMC RP PDFs into audio files for use on smart devices (similar to audio books).
- Incorporating parts of TMC RPs into a company's communications/documentation to create interest, and provide the link to the full RP.
- Attaching the PDF of the pertinent TMC RP to the a labor operation in the fleet/ service provider's business system.

Usability

Regardless of the access medium chosen, once personnel gain access to the RP "library," the usability of the information becomes important. Personnel supporting a service-based operation, whether it be at a dealer (or equivalent) or fleet, manage many elements at once, requiring that they be armed with the right tools and right information when they need is critical to performing their work better and more easily.

TMC has added enhanced search and print capabilities to the online RP manuals on TMC Connect, allowing for users to find and use what they need more quickly. As technology advances, TMC is continually evaluating ways deliver RPs in a faster, more succinct way. In the near term, there are trials being conducted to showcase the most widely utilized RPs via videos on TMC's YouTube channel. In its five-year plan, TMC is also evaluating technology

that supports a voice interactive RP manual (such as through Amazon's Alexa and Apple's Siri search engines). TMC continues to seek ways to make our industry's "tribal" knowledge and experience more appealing and available to our NextGen leaders.

Future Usability Best Practices

TMC's members and those participating in TMC's meetings are also contributing ideas to more easily place RPs into the hands of the industry's line personnel. Ideas such as integrating RPs into the industry's diagnostic tools or including relevant in manufacturers' component shipments/boxes, are just a few

creative ideas that have been offered for future consideration.

CONCLUSION

TMC continues to evaluate technology advancements in accessing and using TMC RPs. Even while this process is underway, the opportunity currently exists for service providers and fleets to take advantage of TMC's wealth of documented knowledge and experience through a systematic evaluation and adoption of TMC RPs. All it takes is desire and commitment to prioritize and make use of the tools already available.