

Case Study



Automotive Industry Development Centre

Tenneco Ride Performance TPM Cluster Programme



Company Background

The company was previously known as Armstrong Hydraulics until it was bought by Tenneco Automotive in 1997. METAIR currently owns 25% of Tenneco Ride Performance.

The company trades under the name “Tenneco Ride Performance” and is part of Tenneco’s European operations. Tenneco Ride Performance manufactures Monroe shock absorbers for Original Equipment Manufacturers (OEM), as well as the aftermarket. Tenneco Ride Performance is the only local manufacturer that supplies shock absorbers to the local OEM market.

“The AIDC has been a true partner with Tenneco in establishing solid ground rules in order for Tenneco to quickly become a leader in continuous improvements”

Overview

Company: Tenneco Ride Performance

Location: Grahamstown Road, Port Elizabeth 6001

Number of employees:
471

Core products & processes:
Shock absorbers

Percentage of goods exported:
20%

Programme period:
January 2013 – June 2014

Key Challenges Faced

Most of the current methods used in the facility are that of old technology. The company joined the AIDC TPM Cluster programme in order to streamline their processes to world class standards with the use of the TPM standards.

Goals

The main objective of the programme is to focus on four TPM pillars; Autonomous Maintenance, Focused Improvement, Planned Maintenance and Quality Maintenance.



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Figure 1: Directional flow markings added to motors and valves



Figure 2: Gauge markings to display acceptable and unacceptable readings.



Figure 3: Service unit visuals to display acceptable and unacceptable oil levels.

Programme Journey

Tenneco Ride Performance (RP) joined the TPM Cluster programme in January 2013. The TPM Champion, Paul Jansen, is the Production Manager, while the TPM pillar leaders consist of Continuous Improvement Manager, Sello Hoeane (Focused Improvement) and Plant Engineering Manager, Justin Botha (Autonomous Maintenance).

The first step taken by the team was to identify the need for TPM, as well as the model area for implementation. Cell 5A was selected as the TPM model area.

The next step was to conduct Autonomous Maintenance Training on Step 0 and Step 1 focusing on initial cleaning for the model area. The team members, supervisors and managers received training on the Autonomous Maintenance Pillar. Based on the training a number of Kaizen improvements were discussed and implemented resulting in an increase in performance.

Key learning points identified in this journey include the understanding of team member involvement. Team member involvement is important for project implementation to avoid possible conflict with management.

Tenneco RP was audited for AM Step 1 and passed with 84%. The model area progressed to step 2 of Autonomous Maintenance, where the shop floor was trained on AM step 2 activities, 7 QC tools, 7 wastes and Kaizen developments. Focus was placed on the reduction and elimination of sources of contamination and hard-to areas. Tenneco RP was audited for AM Step 2 and passed with 76%.

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Before



Figure 4: Gauge not visible to the team member during production.

After



Figure 5: Gauge moved to face the team member during production.



Figure 6: Transparent panel added to the Washing Machine to improve the ease of inspection.

Autonomous Maintenance Step 3

Tenneco RP is currently in step 3 of Autonomous Maintenance. Focus has been placed on developing tentative standards for cleaning, inspection and lubrication.

The following documentation has been modified/developed for Step 3:

- ✓ The cleaning standards have been modified to include lubrication,
- ✓ Lubrication standards have been developed to explain *what* to lubricate,
- ✓ Single point lessons have been developed to explain *how* to lubricate,
- ✓ Check sheets have been developed to ensure cleaning, inspection and lubrication takes place at the required intervals.

Visual Management and Kaizen improvements have been used to improve inspection for the team members. These have been listed below:

- ✓ Gauges and service units with lubrication levels have been marked to show acceptable and unacceptable areas,
- ✓ Opaque panels have been replaced with transparent panels,
- ✓ Bolts have been coloured and marked to show adjustments required by either production or maintenance,
- ✓ Directional flow markings have been added to motors and valves,
- ✓ Gauges have been moved to face the team member, for easy inspection.

Benefits (Kaizens)

Kaizen	Before	After	Percentage Improved	Value of Savings
Auto-Welder door speed: reduction in door opening time	1.35 sec	0.9 sec	33.33%	R13 146 (hard savings) R447 288.77 (soft savings)
Auto-Welder door height: reduction in door opening time	0.9 sec	0.65 sec	27.78%	R7 350 (hard savings) R248 460.50 (soft savings)
Anti-spatter: reduction in cleaning time	10 min	3 min	70%	R10 290 (hard savings) R351 137.55 (soft savings)



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Figure 7: Colour coding of bolts to distinguish between adjustments for maintenance and production.



Figure 8: An anti-spatter device added to the Auto-Welder has reduced the frequency of cleaning the Auto-Welder gun nozzle.

Sustainability (What can be done from AIDC viewpoint?)

Once the 24 month period has elapsed, the Pillar heads of the TPM team will continue to conduct regular audits in terms of Autonomous Maintenance, Focused Improvement and Planned Maintenance, to ensure that the TPM standards are kept in place.

Way Forward (What is the company planning to do?)

Tenneco Ride Performance has commenced with the horizontal deployment of TPM to the Top End Weld cell, which is also their Tenneco Manufacturing System (TMS) cell, in which all improvements are implemented before being rolled out to other areas in the plant.

The Top End Weld area is currently in step 1 of Autonomous Maintenance. The company plans to roll out the TPM programme to the Ford T6 CARE area next.

CONTACT DETAILS

Mieshkah Dolley-Ryneveld
Project Manager

Supplier Development Department

Tel: +27 41 393 2100

E-mail: mryneveld@aidcec.co.za