

Vehicle Scale Service Programs Performance and Budget Control

A vehicle scale is a major capital equipment investment. Proper, dependable operation of each scale you own is important to your business. Your experience with maintaining your vehicle scales may lead you to ask if there is a better, more cost-effective way to maintain the performance you require and achieve a longer scale life.

This paper discusses the various aspects of vehicle scale performance that should be taken into account when designing a maintenance plan for your vehicle scale. It also reviews service programs as an excellent solution for maximizing dependable performance, reducing unscheduled downtime, and optimizing your vehicle scale maintenance budget.



Content:

- 1 Scale Performance Defined
- 2 Influences on Scale Performance
- 3 Impact of Maintenance Activities
- 4 Effective Maintenance Activities
- 5 Designing a Vehicle Scale Maintenance Plan
- 6 Choosing a Service Provider
- 7 Benefits of a Well-Designed Maintenance Plan

1 Scale Performance Defined

Whether you maintain one vehicle scale or many, there are a few basic measures of vehicle scale performance that can have a significant impact on your overall operations. These include:

- **Scale life.** Lengthening the useful life of your scale asset improves your return on investment and helps delay replacement expenditures.
- **Scale reliability.** Improvements in scale reliability help you avoid disruptions in your operations and avoid the costs of unexpected downtime.
- **Scale downtime.** Costs derived from delayed shipments, idle production equipment or lost revenues can negatively impact your customer relationships.
- **Scale accuracy.** Finally, higher accuracy can have a positive influence on your revenues by ensuring correct prices on products sold by weight, avoiding over-charges on products purchased by weight, and increasing service fees determined by weight.

The scale performance metric that is most important to you will depend on the type of business you operate. However, it is likely that improvements in one or more of these areas will make a positive impact on your business.

Improvements in scale reliability help you avoid disruptions in your operations and avoid the costs of unexpected downtime.



2 Influences on Scale Performance

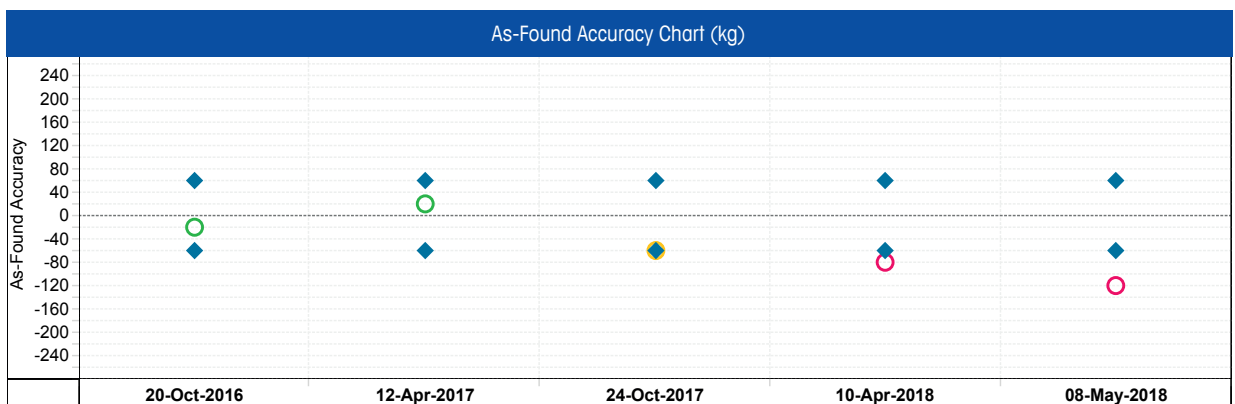
Designing an appropriate maintenance plan requires skill and knowledge, because all vehicle scales are subject to influences that can negatively impact their life and performance. First, vehicle scales are usually outdoors and subject to adverse weather conditions that can degrade a scale’s finish, accelerate the failure of critical components, or cause poor performance. Second, vehicle scales are subject to extreme loads and the abrupt, heavy-duty starts and stops of trucks coming onto and leaving the scale, stressing scale components.

In time, these extreme influences can cause the scale to become more and more inaccurate—often without giving any signal of performance degradation to the operator. This means that they can operate for days, weeks or months as the costs of poor performance continue to add up. Maintaining scale performance, then, becomes an important goal. Additionally, these influences can start to impact the life of the scale and its reliability, creating unplanned downtime that can also cause significant business losses.

Example: 100 trucks per day on a scale weighing -50 kg per load

Bulk Commodities	Price per metric tonne	Price per kg. (\$ USD)	1 day loss (\$ USD)	1 week loss (\$ USD)	1 month loss (\$ USD)	1 year loss (Corn is a 6 mo. season)
Corn	\$150	\$0.15	\$750	\$3,750	\$15,000	\$90,000
Solid Waste	\$35	\$0.035	\$175	\$875	\$3,500	\$42,000
Cement	\$100	\$0.10	\$500	\$2,500	\$10,000	\$120,000

Serial Number	AssetNumber	Model	Manufacturer	LoadCellType	Scale Age (yrs)
XX1	North Outbound	Axle Scale	Competitor	Analog Shear Beam /..	12



3 Impact of Maintenance Activities

Timely inspection and appropriate preventive maintenance can counter harmful influences on scale longevity and performance by ensuring that the scale is operating within nominal parameters. These activities include thorough and disciplined inspection of the scale's platform, foundation, electronics and peripheral equipment to identify required repairs, upgrades or replacements that can help to avoid degradation and failures. Additionally, periodic calibration tests the weighing performance of the scale according to regulations or standards, allowing inaccurate weighing results to be corrected by adjustments.

If these maintenance activities are done correctly, the performance and longevity of your scale can be improved, ideally enhancing both your productivity and profitability.

Timely inspection and appropriate preventive maintenance can counter harmful influences on scale longevity and performance.



4 Effective Maintenance Activities

Preventive maintenance must be appropriate for the type of scale serviced. Different scale types use various mechanical and electronic technologies that require specific service procedures. Likewise, inspection procedures must also be appropriate for the scale type. Results must be electronically recorded to observe scale performance over time.

Calibration is the most complex of maintenance activities, as it must be performed and documented according to procedures that satisfy local, state and national regulations. However, just meeting governmental regulations will not optimize weighing accuracy, so to maximize yield and revenues, further adjustments and testing are warranted. Calibration data must also be electronically archived for future reference.

Finally, the types and quality of maintenance activities performed can vary considerably depending on who has designed the maintenance procedures and trained the technicians performing them, making procedural design and technician training important. We will cover what to look for when choosing a service partner in section 6.

Just meeting governmental regulations will not optimize weighing accuracy.



5 Designing a Maintenance Plan

An appropriate maintenance plan can be created for any vehicle scale to ensure both a long, reliable life and that it can deliver weighing performance that meets business requirements. Conditions that should be taken into account when designing an ideal maintenance plan include the:

- Physical environment of the scale
- Traffic on the scale (trucks per day)
- Industry and application for the scale
- Potential costs of scale inaccuracy and downtime
- Historical performance of the scale
- Age, condition and anticipated life of the scale
- Maintenance budget for the scale

To design a maintenance plan in consideration of these parameters, it is necessary to collaborate with a service provider who has extensive experience with, and a service database for, vehicle scales with conditions similar to yours. This will enable an effective partnership in determining the frequency of preventive maintenance required to achieve your desired scale-performance goals.

For businesses that rely on multiple vehicle scales, each vehicle scale must be evaluated independently to design an appropriate maintenance schedule, but the overall plan must take into consideration all scales covered within your total maintenance budget. In some cases, it may be advisable to make trade-offs in individual scale maintenance plans in order to accommodate desired repairs, upgrades or replacements for other scales.

If your service provider has archived service and performance data on each of your scales, a report can be generated that provides insights into the relative performance, repair costs and accuracy of each of your scales. This information will help with decision-making regarding the allocation of your annual scale maintenance budget.

It is necessary to collaborate with a service provider who has extensive experience with, and a service database, for vehicle scales.



6 Choosing a Service Provider

If you choose an appropriate service provider partner, you will have the assistance needed to design maintenance plans that meet your business performance objectives and fit your budget. Some characteristics of a service provider that can help you meet your objectives include:

- Service experience with the types and technologies of your scales
- Proximity of skilled service technicians to your scale locations
- Know-how servicing scales in your industry and physical environment
- Documented procedures for scale service activities
- Access to repair parts for all appropriate scale types
- Knowledge of calibration regulations in all needed regulatory jurisdictions
- Calibration procedures and appropriate reference weights to optimize accuracy
- Routine service and calibration data collection, analysis, reporting and archival

Furthermore, because of the harsh nature of vehicle scale weighing, an ideal service partner will also be able to offer you a plan that includes emergency repairs (parts and/or labor). If repair costs are covered in your plan, your maintenance budget is protected against undesirable surprises.



If repair costs are covered in your plan, your maintenance budget is protected against undesirable surprises.

7 Benefits of a Well-Designed Maintenance Plan

Choosing a capable service partner and collaborating to design an effective maintenance plan for one or more vehicle scales can help you realize the following benefits:

- **Data-based decision making.** A plan that provides you with historical performance data can help you lengthen the working life of your scale and know when it is time to make adjustments or repairs.
- **Increased productivity.** Dependable scale performance means that both operators and customers can keep production moving.
- **Reduced downtime costs.** Reducing scheduled downtime and minimizing unplanned downtime can significantly improve your profits.
- **Increased revenues.** Weighing more accurately means less product giveaway, correct buying costs, and correct fee income.
- **Elimination of unplanned repair costs.** If you include emergency repair costs in your service program your budget remains consistent throughout the year, eliminating unpleasant surprises.
- **Improved long-term planning.** Year-over-year performance data can help you plan for repairs, upgrades and replacement.

In summary, a well-designed maintenance plan will optimize your maintenance budget, improve the return on investment for your vehicle scale assets, and ensure that your scale accuracy and productivity levels contribute positively to the success of your business.

Choosing a capable service partner and collaborating to design an effective maintenance plan for one or more vehicle scales can help you realize a lot of benefits.



METTLER TOLEDO Group
Industrial Division
Local contact: www.mt.com/contacts

www.mt.com/ind-service

For more information



Subject to technical changes
©04/2020 METTLER TOLEDO. All rights reserved
Document No. 30476125 A
MarCom Industrial