Vehicle Condition and Maintenance

Good vehicle condition is key in proper fleet management, helping attain operational goals in a safe manner, optimising the use of resources and complying with the national laws and regulations. Good vehicle condition is achieved through appropriate vehicle use and maintenance.

Generally, maintenance can be approached in two different ways:

- **A preventative scheme** consists in scheduling periodic maintenance services.
- **A reactive scheme** consists of waiting for a breakdown to happen before repairing it.

Vehicle fleet management aims to make transport available for the maximum amount of possible time. This is achieved by planning maintenance interventions and limiting the downtime to a minimum.

It is always bad to lose the use of a vehicle for a day. But when vehicle maintenance is scheduled in advance, teams or staff can plan around the absence to reduce impact with other activities requiring the use of the vehicle.

Furthermore, running a vehicle without preventive maintenance results in inefficiencies because the subsequent breakdowns tend to cost significantly more and the repairs take much longer to complete. Certain breakdowns can affect the vehicle reliability and consequently the user's safety. Repairs and maintenance should be timely done without delay to keep the vehicle in a trustworthy state during its whole life cycle.

Frequency of Preventative Maintenance

Preventative maintenance starts with daily and weekly checks. These inspections are the responsibility of the driver with the goal of proactively identify possible mechanical issues. A recommended preventative maintenance schedule is listed below:

Before starting the vehicle engine for first use in the day, the driver should take 10 minutes to check:

- *Engine oil level.*
- *Coolant level.*
- *Brake and clutch fluid level.*
- *Windscreen washer water level.*
- *Cleanness of radiator.*
- *Condition of all tyres, including the spare tyre (pressure by sight, cracks on both sides).*
- *Possible leaks under the car.*

After starting the vehicle, the driver should listen for abnormal noises, check indicators, lighting and dashboard warning lights, and look for the presence of all required equipment.

Template Checklist

Once per week (recommended at the end of the week), the driver should take 1 hour to:

- *Clean the vehicle inside and outside.*
- *Clean the air filter.*
- *Check the battery (proper fixation and water level).*
- *Check power steering oil level.*
- *Check steering wheel free play.*
- *Check tyre pressure and condition of the tyres (see tyre pressure table).*
- *Check for presence of valve caps.*
- *Check and clean front and rear axle breather.*
- *Check exhaust pipe and silencer condition and fixation.*
- *Check the springs and all bushes from the front and rear suspension.*
- *Check shock absorbers (check bushes and no leaks).*
- *Check front and rear stabiliser bar bushes control.*
- *Check functioning of doors, locks, seat belts and (warning) lights.*

Adapted from MSF Vehicle maintenance logbook.

In case of any identified problems, the driver should record them in the vehicle logbook and inform the fleet manager, who will evaluate the scale of the damage and to plan all relevant arrangements.

Besides the regular checks under the driver's responsibility, specific maintenance services are regularly required to keep the vehicle up to a good functioning standard. Different parts or fluids in the vehicle require different frequency for its replacement: for instance, engine oil requires changing with a higher frequency than the axles oil. Other interventions, like changing brakes pads or replacing the tyres will be done according to the part's current condition.

Fleet managers should check with the vehicle manufacturer about what regular maintenance is required for the vehicle and the recommended frequency for repairs and maintenance. The maintenance schedule is usually available in the vehicle manual, but is usually also available online. The frequency of maintenance should be adapted according to the conditions of use specific to every operational environment, and periodic maintenance should be conducted of a qualified mechanic.

Owned or Subcontracted Mechanical Workshop

In general, the choice between setting up and managing a workshop or using a mechanic services provider is based on:

- The size of the fleet and the scope of maintenance requirements, based on what is needed, for how many vehicles, and how often and what tasks need to be performed.
- The availability and quality of available service providers and spare parts.
- The cost of every alternative solution.

Organisations should consider all factors before settling on possible alternatives.

A mixed solution where the basic services are performed in a self-managed workshop and more complex interventions are outsourced is often a suitable solution when operating in remote locations where services and infrastructure are limited and the distance to the closest mechanic workshop makes frequent use impractical.

Although evaluating the "availability" could be the easiest part, assessing the quality of service can be difficult. Some of the following things could be used to assess service providers:

- Deviations from initial diagnosis, repair costs estimate and time.
- References from other clients.
- Number of ad-hoc repairs attributable to lack of maintenance, or were required despite of making the recommended regular maintenance service.
- Recurrent faults in a particular vehicle. If a vehicle is brought to service with specific issues, these should be solved (preferably "permanently") when the service is done.
- Number of vehicles reaching their estimated lifespans. All vehicles following the recommended regular maintenance should be in reliable running condition until their normal lifespan.

In addition, some basics could be assessed in a visit to the workshop premises:

- Safety and security, with special attention to access control.
- Availability of specific suitable tools in good condition and their safe use: tyre assembly, welding, power equipment, grinding wheel, etc.
- Availability of specific premises and capacity to work on simultaneous lanes for light vehicles, trucks, motorbikes, generators.
- Type of mechanical interventions possible: Engine, body, paint, electrical, vehicle computer programming.
- Availability, sourcing, and control over spare parts.
- Cleanliness and general condition of the workshop.
- Working conditions and care for occupational risks.
- Procedures with used parts and general and hazardous waste management.

Costs should never be the guiding principle- quality of service is paramount. Running costs, especially the initial investment for an owned workshop, can be considerable. The time period covered by any self-managed workshop is of key importance as the time to recover the investment can be significant.

If the final decision is to outsource maintenance, it is important to carry periodic assessments of the quality of service and to keep records of all repairs and maintenance. It is recommended for the assigned driver to be present during the whole repair process and avoid overnight stays for vehicles if the premises are not considered secure. It is recommended to request a visual inspection of all the parts that have been replaced and invoiced.

Refuelling

Fuel is essential for vehicle functioning and is a significant expenditure in most humanitarian operations. Poor quality fuel can cause serious (sometimes irreversible) mechanical problems

and considerably reduces the vehicle's lifetime. Therefore, fuel refilling is a basic activity but must be carefully controlled.

An average light vehicle consuming 10L of fuel every 100 Km, travelling 100Km daily will have to refill at least once weekly (more or less often depending on fuel tank capacity). Basic rules for fuel use:

- Always drive with more than half of the tank full, to avoid an "almost empty tank" situation in the middle of a journey.
- Always refill out of service hours, to avoid affecting regular activities.

It is recommended to schedule at least 1 refill per week, regardless of the tank level of the vehicle. Refills should be done up to full tank capacity. This will ease fuel consumption calculations and reduce the frequency of refills. Fuel refilling can be a hazardous and time-consuming activity, especially when managing large fleets or in congested gas stations.

It is suggested to incorporate a fuel refilling procedure within the fleet management policies. In addition to the above-mentioned issues, procedures should include basics on fuel quality and payment methods.

Fuel should be protected against all accidental or intentional contamination - no impurities, dust, other liquids, or chemical additions should interact with or mix with fuel. Fuel quality should be checked throughout the supply chain, especially if transported or stored in barrels, as barrels may be dirty or water from humid air condensation.

Managers must ensure that vehicles are refilled with the correct fuel type: filling up a diesel vehicle with petrol has irreversible consequences and can end up destroying the engine.

Use of Outside Fuelling

If regular refilling is done by vehicles directly at an outside fuel station a refilling procedure should be defined and include the following basic topics:

- Which fuel stations are valid for refilling: a regular procurement procedure should be applied to select the most appropriate fuel supplier. Basic criteria such as: price, fuel quality, proximity, reliability, payment conditions, other available services (tire pressure check, cleaning) should be included in the evaluation.
- The persons authorised to acquire fuel
- The maximum quantity that can be drawn.
- The payment method. Vouchers or post-paid cards are suitable options. Cash should be avoided due to the risks and the administrative burden, especially with large fleets and multiple drivers. For the use of vouchers and post-paid cards an agreement must be reached with the supplier specifying the terms of use.

Template fuel voucher:

FUEL VOUCHER

N°:

To be used only for the purchase of fuel when not paid on delivery.

Fuel station name:

☐ For a vehicle ID: _____

☐ For stock

AUTHORISATION

Type of fuel to be delivered:

☐ **Diesel** ☐ **Gasoline** ☐ **Kerosene**

To deliver in the vehicle tanks(s):

☐ Full tank(s)

☐ Specified quantity: _____ liters

Other:

☐ Jerrycan(s) _____ liters

☐ Drum(s) or cistern(s) _____ liters

Authorized by (name and signature):

Date:

FUEL DELIVERED

Quantity delivered *in figures*: _____ liters

Date of delivery: _____

in letters _____ liters

Received by (employee name and signature):

Signature of the station manager and stamp:

When the fuel is for the vehicle, do not forget to fill the fuel logbook.

Adapted from ACF

To allow reconciliation and payment, the voucher should be printed/filled with carbon copy in three sheets:

1. Responsible for authorisation.
2. Fuel station.
3. The employee receiving the fuel for subsequent delivery at office for reconciliation and payment purposes.

For an overview of self-managed fuel supplies, please review the section on[stocking and managing fuel](#) at the end of this guide.