FEEDBACK TUTORIAL LETTER

2ND SEMESTER 2019

Assignment 2

Practical Transport Operations Management (PTO612S)
Dear students
Thank you for the effort and congratulations in completing your second assignment for this semester.

It is very important to write a proper assignment report at your academic level. You can only achieve this by following the assessment criteria in your tutorial letter. An assignment is graded with distinction if it is adhering to the content, structure, presentation and language defined criteria. Apart from answering the questions correctly, we also assess the understanding and use of practical transport operations concepts and theories; logical flow of ideas, presentation of information using diagrams, examples, tables and correct grammar.

The biggest problem is that students are not referencing (in text referencing) their work. Please use the APA referencing guide to cite the sources of the information used in your assignments.

Finally, you should always make sure you read your assignment carefully before attempting to answer any question, and also, be guided by the marks allocated per question when answering questions.

Best regards,

Mrs Ester Jesaya
SPI621S Marker Tutor
QUESTION 1 [20 MARKS]

Mr John Van Wyk is interested in transporting products that are listed below. Please advise Mr Van Wyk, what type vehicles he can buy so that he can transport the products efficiently and effectively? You should explain to him the reasons for advising him to choose a certain type of vehicles (trucks).

20 Marks

a) Fruits and vegetables for the clients situated at Oshakati, the supplier is in South Africa. Fruits and vegetables must be transported with Templeature controlled bodies vehicles from South Africa to Namibia. This is because they need to be kept under a certain temperature because they are weather sensitive, and they can get spoiled easily.

- Temperature controlled bodies are vehicles with Rigid box made of insulated material and designed to carry temperature-sensitive (chilled or frozen) products.
- The Bodies can be fitted to rigid vehicles or trailers.
- Operate a freezer or chiller driven by a separate engine or by the vehicle’s main engine general include electric standby facilities.

Figure 1: Temperature controlled vehicle
b) Petroleum products (diesel, and petrol- unleaded) from Tsumeb depot to Ruacana town.

Petroleum products can be transported with Road tanker vehicles. Road tankers vehicle has the following characteristics:

- Permanent tank fitted to a chassis for the transportation of liquids, gases or powders.
- Loading or unloading methods include gravity feeds, blowers and vacuuming.
- Tank bodies are frequently fitted to trailers and rigid vehicles, often multi-axle to maximise weight distribution.
- Tank operations include an internal liner to enable transportation of mixed loads without the need to flush out the tank.

![Road Tankers Vehicle](image2.png)

*Figure 2: Road Tankers Vehicle*

c) Uranium from Swakop Uranium to Sea port in Walvis Bay.

Uranium, sometimes called yellowcake, is a dangerous chemical that should be handled with care. It is transported in 200-litre drums, each holding about 400 kg $\text{U}_3\text{O}_8$, packed into normal *six-metre shipping containers*. The containers are then loaded on the *skeletal trailers vehicles*.

The Skeletal trailers has the following characteristics:

- Chassis trailer without a purpose-built body.
- Designed to carry shipping containers that are usually secured to the chassis via twist locks set at each lower corner of the container.
d) Beer from Namibia Breweries Limited to Metro at Oshakati. Beer can be transported by **Curtain-siders vehicles.** The curtain-siders vehicles has the following characteristics:

- Roofed frame with a flexible curtain fitted to the sides of the body, can include a rear section or barn door or a fixed wall.
- Ideal for palletized loads that requires protection from weather.
- They permit efficient loading and offloading; nearside and offside access.
- They provide less load security than rigid-sided vehicles.
QUESTION 2 [30 MARKS]

2.1. What makes a vehicle replacement programme works? 10 Marks

- A well-managed maintenance programme.
- A maintenance records for each individual vehicle from purchase date to present.
- Fuel consumption figures for each individual vehicle
- Age records of all vehicles
- Accurate kilometre records for each vehicle
- Records breakdowns for each vehicle and the reasons for the breakdowns
- The correct vehicle for the job (a proper selection and vehicle specification programme).

2.2. The purpose of the vehicle maintenance management is to maintain a fleet of vehicles to minimize breakdowns and reduce maintenance cost. Maintaining the vehicles will also prevent delays in transportation of goods. Advise Mr. John Van Wyk on the maintenance categories required on the vehicles of his company? 20 Marks

The students may discuss the following maintenance categories, in their discussion they must make use of practical examples.

i. **Preventative maintenance**: performed in order to prevent failure and breakdowns. This category of maintenance achieve its purpose through regular servicing according to manufacturer specifications.

- Care and servicing by personnel for the purpose of maintaining equipment and facilities in satisfactory operating condition by providing for systematic inspection, detection, and correction of anticipated failures before they occur or before they develop into major defects.
- Maintenance, include tests, measurement, adjustments, and parts replacement, performed specifically to prevent faults from occurring.
- Class 1: regular care for normal operating components or parts and systems (lubrication, cleaning, adjustments etc.)
- Class 2: periodic inspection to uncover conditions that could lead to failure of parts or components (coolant level and battery condition checks etc.)
- Class 3: Upkeep actions to adjust, repair, remove and replace components (adjustment of drive belts, adjust and remove/replace brake pads).

ii. **Predictive maintenance**: monitoring of components or parts to determine whether deterioration is occurring that could lead to vehicle failure.

- It helps to determine the condition of in-service equipment in order to predict when maintenance should be performed.
- It offers cost savings over routine or time-based preventative maintenance because tasks are performed only when warranted.
- A driver may do visual inspection before and after a trip as well as listening to out-of-ordinary noises from the engine of a vehicle.
- Daily walk-around look over the whole vehicle or combination, covering the external condition ensuring that lights, tyres, wheel fixings, bodywork, trailer coupling, load and ancillary equipment are serviced.
- Defect reporting: drivers are responsible for the condition of their vehicles when in use on the road and must, therefore, be able to report any defects or symptoms of defects that could prevent safe operation of vehicles.
- Drivers must also monitor the roadworthiness of their vehicles when being driven and be alert to any indication that the vehicle is developing fault, such as warning lights burning, exhaust emitting too much smoke, vibrations or other symptoms.
- Any defects found must be reported in writing by the driver, and remedial action must be recorded. Recording should include vehicle registration or identification mark, date, details of the defects or symptoms and the reporter’s name.

iii. **Corrective Maintenance**: maintenance that results from component failure and aims to restore the vehicle to a pre-specified condition. The equipment should be inspected to identify the reason for the failure and to allow action to be taken to eliminate or reduce the frequency of future similar failures.
### Inherent reliability characteristics

Vehicle components and parts are designed to be reliable for a certain period and they are vulnerable to failure after this period. Components may also fail due to stress.

<table>
<thead>
<tr>
<th>Inherent reliability characteristics</th>
<th>Description</th>
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<tbody>
<tr>
<td>Dependent failure (chain effect failure)</td>
<td>Components are linked and dependent failures are secondary failures resulting from a primary failure. E.g., if brake pads are not replaced on time and allowed to completely wear off, the brake discs are damaged.</td>
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<tr>
<td>Manufacturing effects</td>
<td>When new vehicles or components are entering the markets there could be manufacturing defects that result in more failure than expected. It influences initial maintenance support requirements of components.</td>
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<tr>
<td>Wear-out characteristics</td>
<td>Ongoing use of vehicles will result in the wear-out of components.</td>
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<td>Operator induced failure</td>
<td>A driver who over-stresses and abuses a vehicle will cause an increase in the frequency of unscheduled maintenance.</td>
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<tr>
<td>Maintenance induced failure</td>
<td>Damaged caused by human error during maintenance activities could lead to damage of other components.</td>
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<tr>
<td>Components or parts damage due to handling</td>
<td>Components or parts can be damaged as a result of handling (transportation) to such an extent that it may result in premature failure.</td>
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<tr>
<td>Incorrect vehicle selection</td>
<td>Incorrect vehicle selection can place more stress on the capacity of the particular vehicle. It lead to downtime and unscheduled maintenance.</td>
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| Table 1: inherent reliability characteristics of corrective maintenance |

iv. **Tyre Maintenance**

- Tyres are the second highest cost item after fuel in most operations.
- A company may set a strict tyre maintenance program to contain tyre costs. The right tyre must be used in the correct application and maintained properly.
- Neglect of tyres can result in increased costs and down time. Maintenance of tyres involves a daily inspection routine.

**Factors that contribute to safety and efficient tyre maintenance:**

- Regular tyre pressure checks
- Strict standards for minimum tread depth
- Careful brake maintenance with even distribution in vehicle trains.
- Disallowing excessive speeds
• Careful tyre-matching maintenance, which means that tyres of the same type should be fitted.

• Correct application of load/pressure, in other words manufacturers recommendations for the pressures tyres have to be inflated to carry specific load.

• Correct alignment on steering wheels as well as the rest of the vehicle.

• Thorough mechanical maintenance in general.

• Driver involvement, in other words the driver is in the best position to carry out most of these maintenance factors.

• Application of correct tyres.

• Rotation of tyres.

• Proper managing of aging tyres.

• Attention to and proper application of wheels.

• Working knowledge of the actual function tubes and flaps.

• Tyres should be numbered and recorded in the vehicle asset register to prevent fraud.
References


[www.moneyadviceservice.org.uk](http://www.moneyadviceservice.org.uk)