

## Unit Standard **30560**

### **Demonstrate knowledge of clutches and manual transmissions**

Level 3 Credit 3 v1

**Student Name:**

**School:**

**Date:**

**Marked By:** \_\_\_\_\_ **Mark** \_\_\_\_\_ **%**

**Feedback:**      **Excellent work**

**Good work**

**Please attempt all questions**

**Please resubmit**

## **USEFUL WEBLINKS**

### **Differential**

<http://youtu.be/gIGvhvOhLHU>  
[http://youtu.be/IN\\_xGRt\\_vVY](http://youtu.be/IN_xGRt_vVY)  
[http://youtu.be/2i9eRoRkx\\_U](http://youtu.be/2i9eRoRkx_U)  
<http://youtu.be/K4JhruinbWc>  
<http://youtu.be/WAyD9HIMtcU>

### **Manual Transmission**

<http://youtu.be/IKywZ730JFs>  
<http://youtu.be/QPaUJfA1KsY>  
<http://youtu.be/vzYGcDZXgWQ?list=PLxyaRsQHmj8Z6BLsAb05RafeILvj-P8nD>  
<http://youtu.be/MgmxydwmtTg>

### **Cone Clutch**

<http://youtu.be/fMcTgcK4fJ8>

### **Limited Slip**

<http://youtu.be/duLUwp11i5A>  
<http://youtu.be/WeLm7wHvdxQ>  
<http://youtu.be/w2bRb17jJ1U?list=PLNEpLfCMNijZmu5DlXhMcrw7UgD2rlBpn>  
<http://youtu.be/w2bRb17jJ1U>

### **Four Wheel Drive**

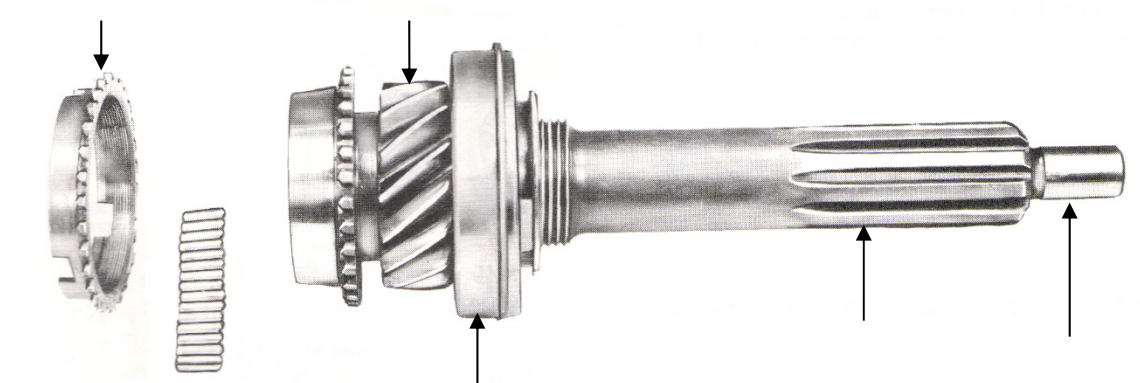
<http://youtu.be/-dh0VQxprJA>  
<http://youtu.be/QjMdUHDI6UY>  
<http://youtu.be/gNq3Sc6opNU>  
<http://youtu.be/47m7QAPrpsI>  
<http://youtu.be/MjaCbpw84kw>

### **Traction Control**

<http://youtu.be/CKtqDIC-rHs>  
<http://youtu.be/LXwNllw0CLQ>  
<http://youtu.be/K5AJVMk4U8Q>  
<http://youtu.be/Z8KjsjrIGqI>  
<http://youtu.be/mKiTAcXK6M4>

## REVIEW QUESTIONS ONE

- Q1 Name the two functions of an automotive clutch.
- Q2 Why are clutch linings grooved?
- Q3 List the seven components that make up a clutch unit.
- Q4 Explain why an input shaft has splines.
- Q5 Labels the components on the diagram below



Q6 Complete the following sentence:

When the clutch is \_\_\_\_\_ the plate is firmly squeezed between the \_\_\_\_\_ and \_\_\_\_\_ plate and power from the \_\_\_\_\_ is \_\_\_\_\_ thereby transmitted by the plate's \_\_\_\_\_ to the transmission \_\_\_\_\_.

When the clutch is disengaged the \_\_\_\_\_ moves \_\_\_\_\_ from the flywheel and power flow \_\_\_\_\_.

Q7 Why are torsional springs fitted to the clutch plate?

Q8 List the components of a pressure plate assembly.

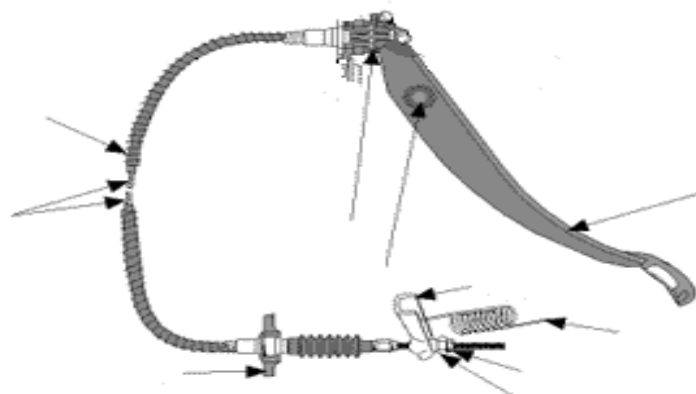
Q9 What is the function of the clutch release bearing?

Q10 What is the function of the clutch release fork?

Q11 Describe the operation of the clutch when the clutch pedal is engaged.

Q12 Describe the operation of a clutch when the clutch pedal is disengaged

Q13 Label the components on the diagram below



Q14 Name the three functions of a clutch master cylinder.

Q15 Describe how depressing the clutch pedal causes the clutch slave cylinder to disengage the clutch.

Q16 Describe the difference between a diaphragm spring clutch and a coil spring clutch.

Q17 Explain why clutch adjustments are necessary.

## REVIEW QUESTIONS TWO

Q18 Explain the purpose of a transmission.

Q19 Name the three most common types of gears and describe the differences between each one.

Q20 Explain the term gear ratio.

Q21 Calculate the following gear ratio.

<b>Input</b>	<b>Output</b>
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<b>Dr 14</b>	<b>Dn 36</b>
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<b>Dn 28</b>	<b>Dr 12</b>
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Q22 Describe the purpose and function of the interlock system.

Q23 If a gear with 48 teeth is meshed and drives a gear of 18 teeth calculate the gear ratio.

Q24 Where are detents used in a manual transmission and explain how they operate

Q25 What is a transaxle transmission?

Q26 Describe in your own words the purpose of a synchroniser sleeve.

Q27 Which of the following is made to slip into a groove that runs radially around the outer sleeve of the synchroniser. Please tick A, B, C or D.

- A. Shift linkage
- B. Shift fork
- C. Synchroniser inner hub
- D. Synchroniser baulk ring



Q28 Explain the terms select and shift when used in relation to a cable operated transaxle.

Q29 Explain the working principles of splash fed lubrication.

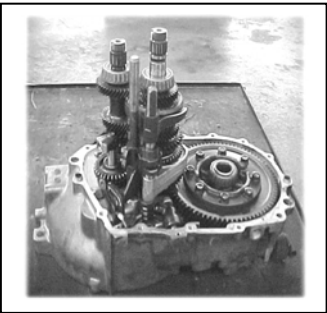
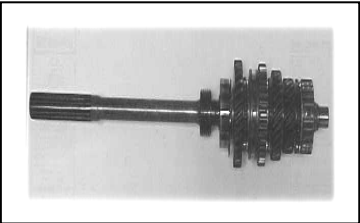
Q30 With meshed helical gears, how many pair of teeth is always engaged.

Q31 List one advantage and disadvantage of using double helical gears.

Q32 Complete the following sentence.

As a \_\_\_\_\_ is being \_\_\_\_\_ the selector  
moves upward causing the \_\_\_\_\_ to move  
the remaining \_\_\_\_\_ into position preventing them  
from \_\_\_\_\_ and \_\_\_\_\_ another \_\_\_\_\_ at the same  
time.

Q33 Identify each of the following components







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