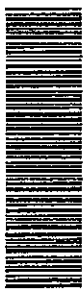


2010/11/569



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

**T1731(E)(N12)T
NOVEMBER 2010**

NATIONAL CERTIFICATE

MOTOR TRADE THEORY N1

(11040651)

**12 November (X-Paper)
09:00 – 12:00**

This question paper consists of 5 pages and 7 diagram sheets.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
 REPUBLIC OF SOUTH AFRICA
 NATIONAL CERTIFICATE
 MOTOR TRADE THEORY N1
 TIME: 3 HOURS
 MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers correctly according to the numbering system used in this question paper.
4. This question paper consists of FIVE questions.
5. Start EACH question on a NEW page.
6. ALL the sketches must be provided with the necessary labels.
7. Correct spelling and terminology are important. (For example, do NOT use 'block' for engine block or 'top' for cylinder head).
8. Marks will be deducted for illegible handwriting, small sketches and untidy work.
9. Marks indicated are percentages.
10. Write neatly and legibly.

PTO

QUESTION 1

- 1.1 List FOUR unsafe acts that could lead to accidents/injuries in the workshop. (4)
- 1.2 State FIVE safety precautions which a mechanic should take into consideration to protect the customer's vehicle while it is under repair in the workshop. (5)
- 1.3 Exhaust fumes from internal combustion engines are poisonous. State ONE safety precaution to be taken to minimise inhalation. (1)
- 1.4 Asbestos dust may be encountered when working on brake and clutch assemblies. What precautions must be taken to overcome the health hazard associated with asbestos dust? (2)
- 1.5 DIAGRAM SHEET 1(A) (attached) shows a sketch of a vernier. Give the total reading of the vernier represented by the sketch. (2)
- 1.6 DIAGRAM SHEET 1(B) (attached) shows a sketch of a micrometer. Give the total reading of the micrometer in millimetres. (2)
- 1.7 What are the following tools used for:
 1.7.1 Ridge cutter
 1.7.2 Torque wrench
 1.7.3 Feeler gauge
 1.7.4 Taps and dies (4)

[20]

QUESTION 2

- 2.1 Name the special tool(s) needed in each of the following cases:
 2.1.1 To cut an internal thread (1)
 2.1.2 When fitting pistons with rings into the cylinder (1)
 2.1.3 To tighten bolts and nuts to a specified tightness (1)
- 2.2 DIAGRAM SHEET 2 (attached) shows the parts of a valve assembly of an engine. Name the labelled parts (A - F) in the answer book. (6)
- 2.3 DIAGRAM SHEET 3 (attached) shows a sketch of an internal combustion engine. Name the labelled parts (A - G) in the answer book. (7)
- 2.4 Name the FOUR strokes of a four-stroke petrol (spark ignition) engine in the correct sequence. (4)

[20]

PTO

QUESTION 3

- 3.1 Make a large, neat sectional sketch of a four-stroke diesel engine during the INLET stroke. Draw only ONE cylinder and name ALL the parts. The piston direction MUST be indicated by means of arrows. (8)
- 3.2 DIAGRAM SHEET 4 (attached) shows a sketch of a single-plate clutch assembly. Name the labelled parts (A - G) in the answer book. (7)
- 3.3 Explain in detail, what happens in a single-plate clutch assembly when the clutch pedal is pressed in. (5) [20]

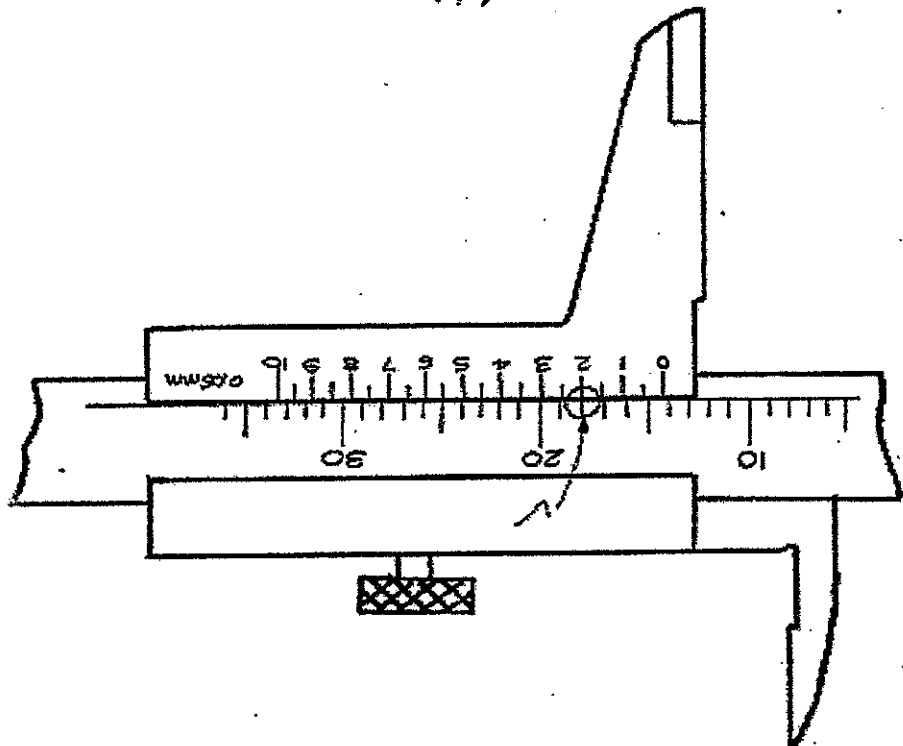
QUESTION 4

- 4.1 State THREE functions of a lubricating oil in an internal combustion engine. (3)
- 4.2 State THREE functions of an engine's cooling system. (3)
- 4.3 Give the names of TWO types of crankcase ventilation systems. (2)
- 4.4 Give the name of TWO types of engine water-cooling systems. (2)
- 4.5 DIAGRAM SHEET 5 (attached) shows a sectional sketch of an oil pump. (2)
- 4.5.1 Name the type of oil pump shown. (2)
- 4.5.2 Label the parts (A - E) in the answer book. (5)
- 4.6 Give, with reference to the water-cooled system, THREE reasons for the overheating of an internal combustion engine. (3) [20]

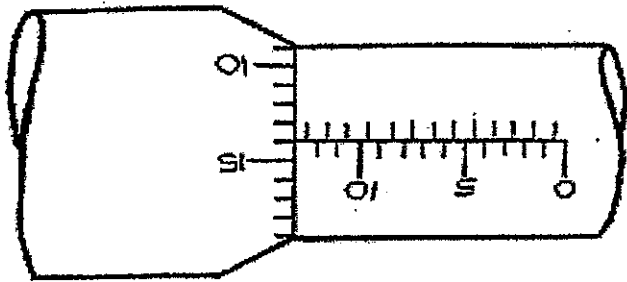
QUESTION 5

- 5.1 State TWO advantages of a front-engine, front-wheel drive arrangement. (2)
- 5.2 State ONE adverse effect on a tyre for each of the following:
- 5.2.1 Tyre pressure too high (1)
- 5.2.2 Tyre pressure too low (1)
- 5.3 Make a simple line sketch showing how you would rotate the wheels on a motor vehicle fitted with radial ply tyres. (Include the spare wheel.) (2)
- 5.4 DIAGRAM SHEET 6 (attached) shows two sketches of tyre ply constructions. Name the type of ply construction shown on each sketch marked A and B in the answer book. (2)
- 5.5 What are the following tools used for:
- 5.5.1 Hydrometer (2)
- 5.5.2 Dial gauge (2)
- 5.6 State TWO defects on the motor vehicle that could be caused by a faulty lead-acid battery. (2)
- 5.7 DIAGRAM SHEET 7 (attached) shows various tools used in a workshop. Name the tools numbered 5.7.1 to 5.7.8 in the answer book. (8)
- TOTAL: 100

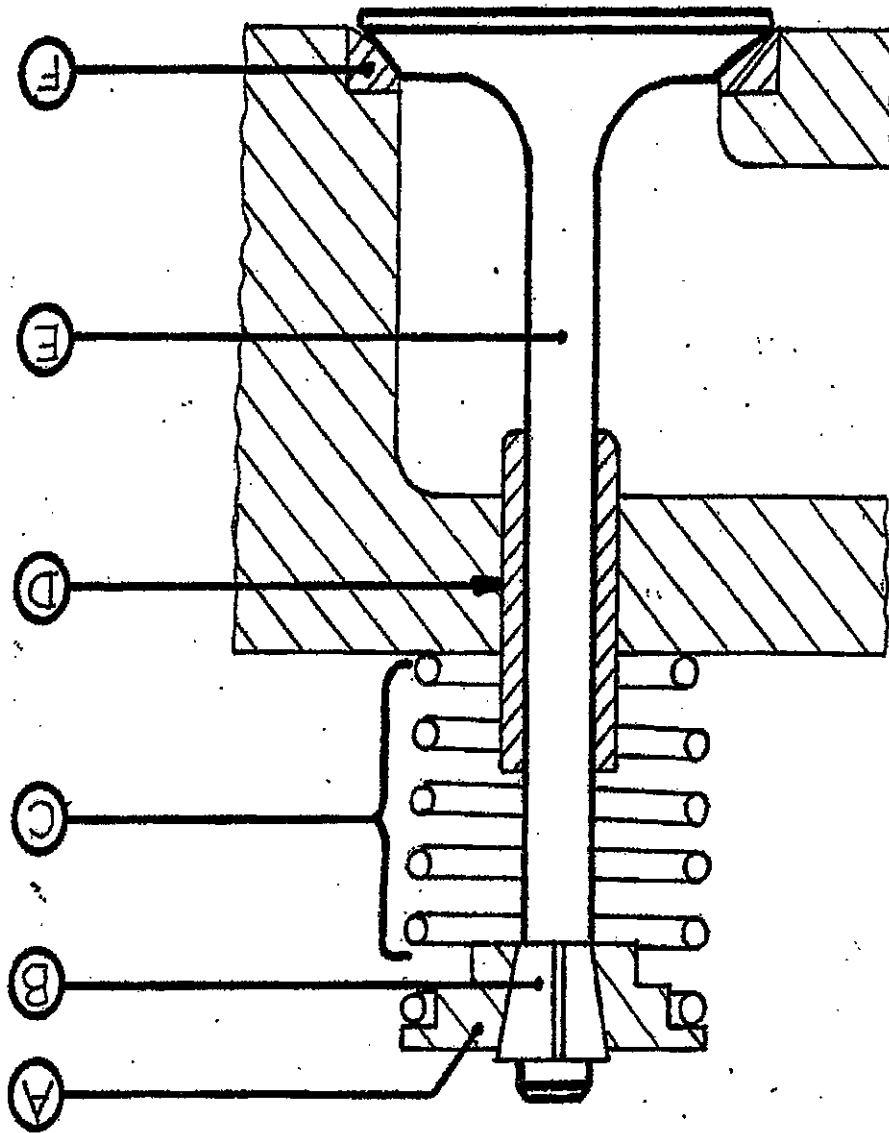
[20]



(A)



(B)



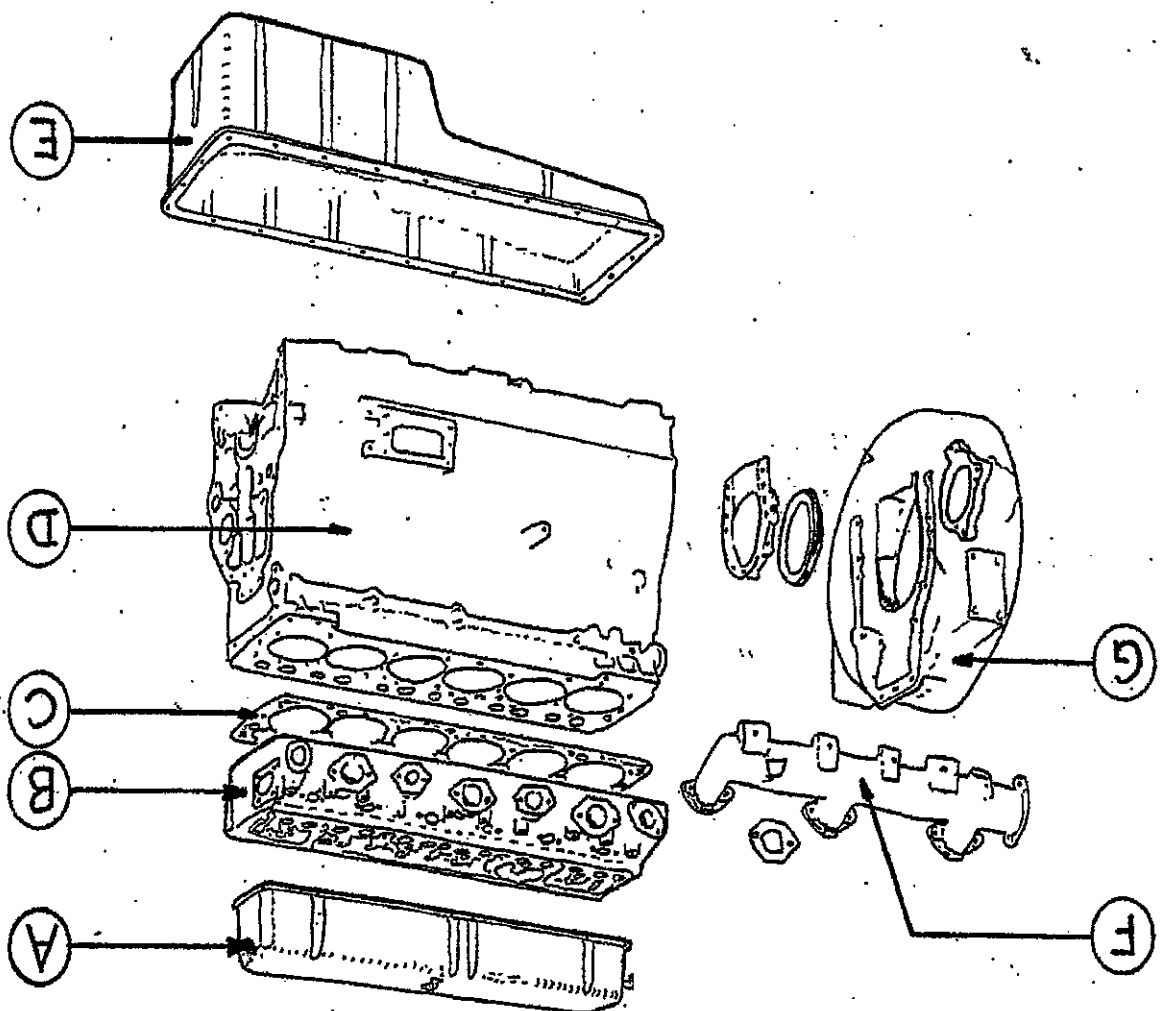


DIAGRAM SHEET 4
QUESTION 3.2

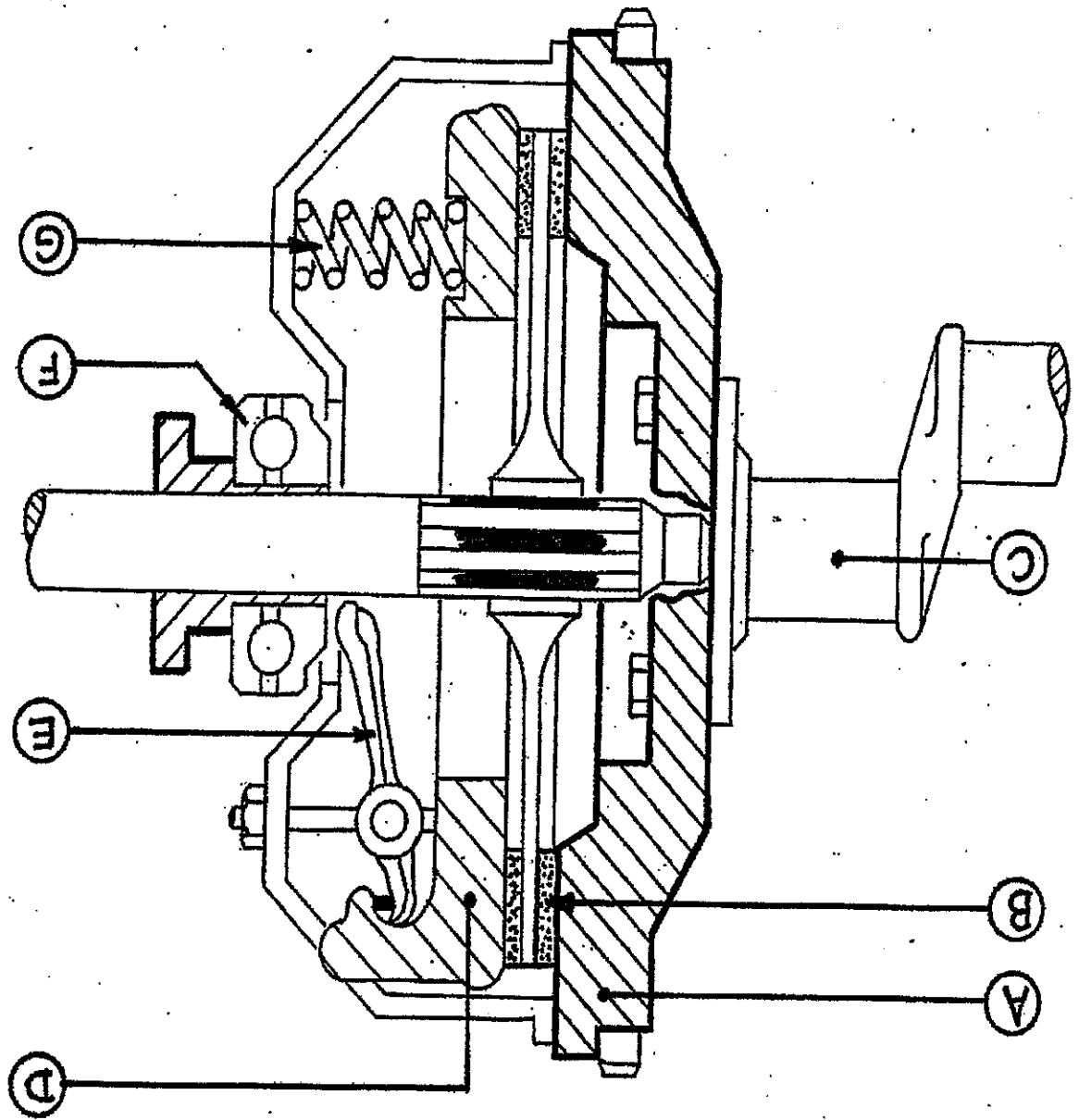


DIAGRAM SHEET 5

QUESTION 4.5

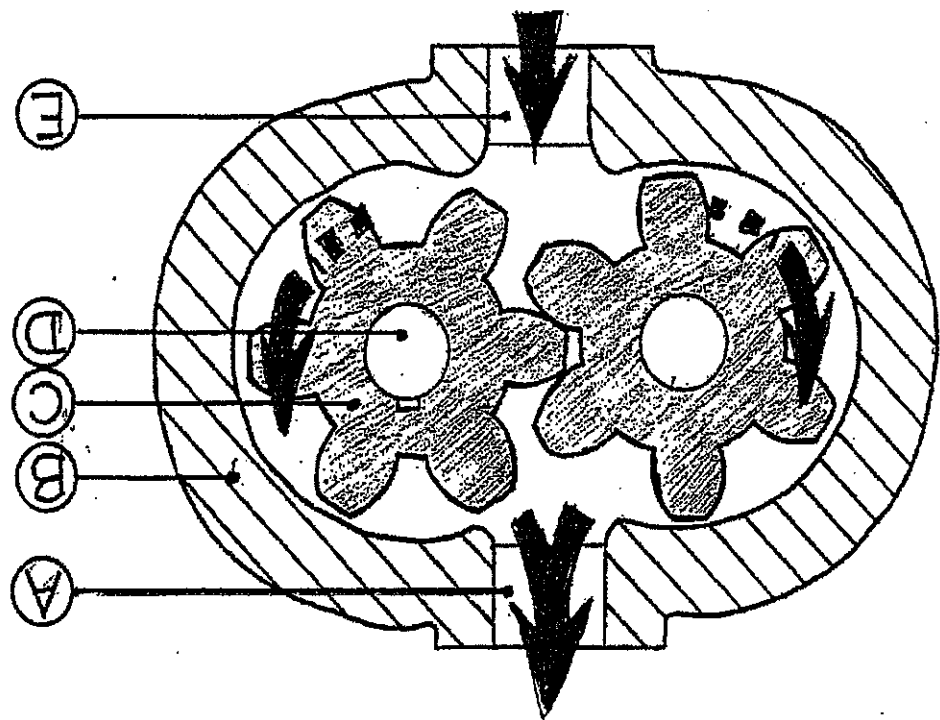


DIAGRAM SHEET 6
QUESTION 5.4

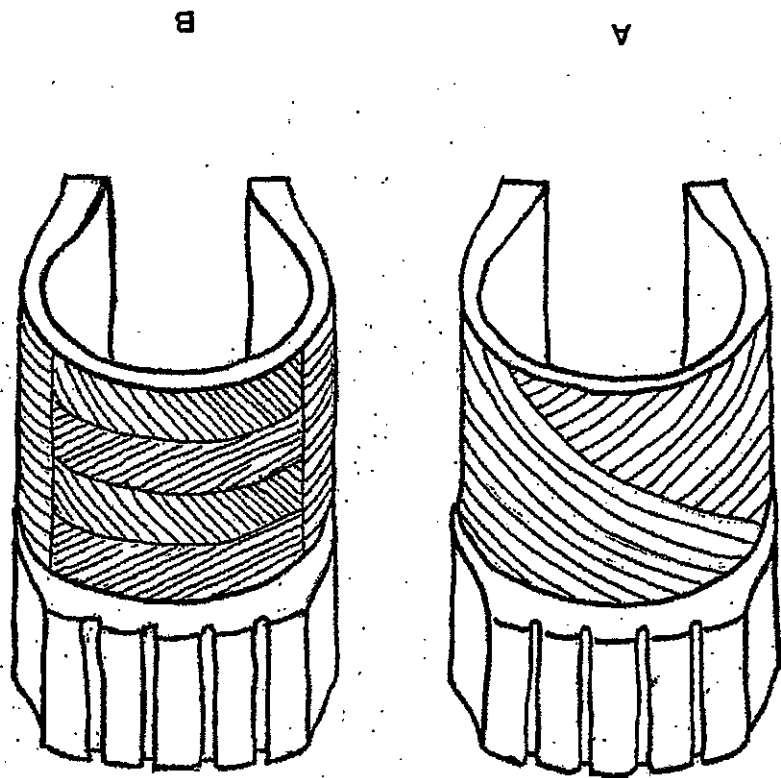
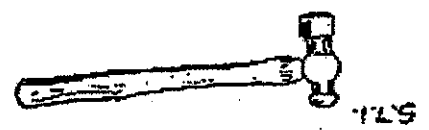
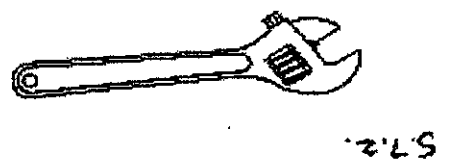


DIAGRAM SHEET 7

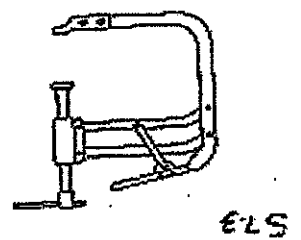
QUESTION 5.7



5.7.1.



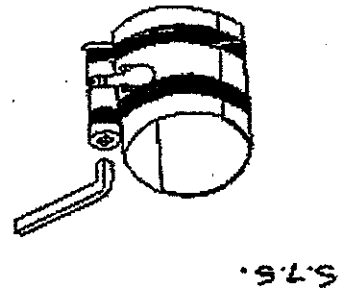
5.7.2.



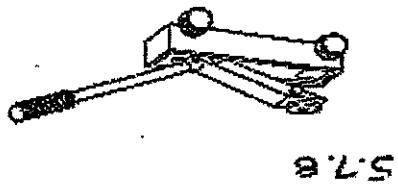
5.7.3



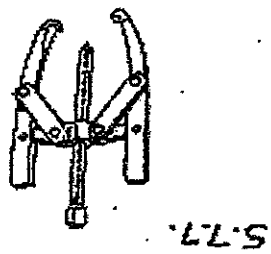
5.7.4



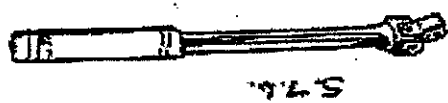
5.7.5.



5.7.6



5.7.7.



5.7.8.

