



NATEF Collision Repair Task B-2 of Mechanical & Electrical Components

(SCHOOL NAME HERE)

NAME _____

AUTOMOTIVE TECHNOLOGY

TITLE: Check for voltage drop and/or current flow in electrical wiring circuits and components with a DMM (digital multimeter)

TASK #: NATEF Collision Repair Task B-2 of Mechanical & Electrical Components

PURPOSE: To develop through repetition, a mastery of measuring voltage drops and current flow at various test points on the Automotive Electrical Diagnostic Trainer supplied by United Concept Trainers.

AMPS ACTIVITY:

Using a DMM approved by your instructor, demonstrate the ability to measure and record circuit amperage flow at the following test point loop connections on each of the trainer circuits.

NOTE: to prevent damage to the DMM internal fuse, ask your instructor if unsure of proper procedures for measuring circuit amperage.

Series Lamp Circuit

With circuit operating normally and ON, open circuit loop at the following test points and install meter in-line:
e to f _____ p to q _____

Parallel Stoplamp Circuit

With the circuit operating normally and ON, open circuit loop at the following test points and install meter in-line:
e to f _____ u to v _____ p to q _____ k to m _____ z to aa _____

Cooling Fan Circuit

With the circuit operating normally and ON, open circuit loop at the following test points and install meter in-line:
f to g _____ o to p _____ r to s _____

Horn Circuit

With the circuit operating normally and ON, open circuit loop at the following test points and install meter in-line:
f to g _____ o to p _____ r to s _____

Heater Circuit

With the circuit operating normally and ON, open circuit loop at the following test points and install meter in-line in the _____ in the _____ in the _____ positions:

LOW – k to m _____ q to r _____ s to t _____

MED – k to m _____ q to r _____ s to t _____

HI – k to m _____ q to r _____ s to t _____

Results: Based on the above activity, what can you determine from the amperage readings of each circuit tested?



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VOLTAGE ACTIVITY:

Using a DMM approved by your instructor, demonstrate the ability to measure and record circuit voltage drops in a circuit that has "fault(s) inserted that will affect normal circuit operation.

Series Lamp Circuit

With circuit operating with instructor installed fault(s), measure and record voltage at the following test points:

a _____ b _____ c _____ d _____ g _____ h _____ k _____ m _____ n _____
o _____ r _____

Parallel Stoplamp Circuit

With circuit operating with instructor installed fault(s), measure and record voltage at the following test points:

a _____ b _____ c _____ d _____ g _____ h _____ n _____ o _____ r _____ s _____
t _____ w _____ x _____ y _____ bb _____

Cooling Fan Circuit

With circuit operating with instructor installed fault(s), measure and record voltage at the following test points:

a _____ b _____ c _____ d _____ e _____ 30 _____ 86 _____ 87 _____ 85 _____
h _____ k _____ m _____ n _____ q _____ t _____

Horn Circuit

With circuit operating with instructor installed fault(s), measure and record voltage at the following test points:

a _____ b _____ c _____ d _____ e _____ 30 _____ 86 _____ 87 _____ 85 _____
h _____ k _____ m _____ n _____ q _____ t _____

Heater Circuit

With circuit operating with instructor installed fault(s), measure and record voltage at the following test points in the in the *LO*, *MED*, and *HIGH* positions:

LOW – a _____ b _____ c _____ d _____ e _____ f _____ g _____ 30 _____ 86 _____ 85 _____
87 _____ h _____ n _____ o _____ p _____ u _____

MED – a _____ b _____ c _____ d _____ e _____ f _____ g _____ 30 _____ 86 _____ 85 _____
87 _____ h _____ n _____ o _____ p _____ u _____

HI – a _____ b _____ c _____ d _____ e _____ f _____ g _____ 30 _____ 86 _____ 85 _____
87 _____ h _____ n _____ o _____ p _____ u _____

Results: Based on the above activity, what can you determine from the voltage drop readings of each circuit when diagnosing faults in electrical circuits?



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