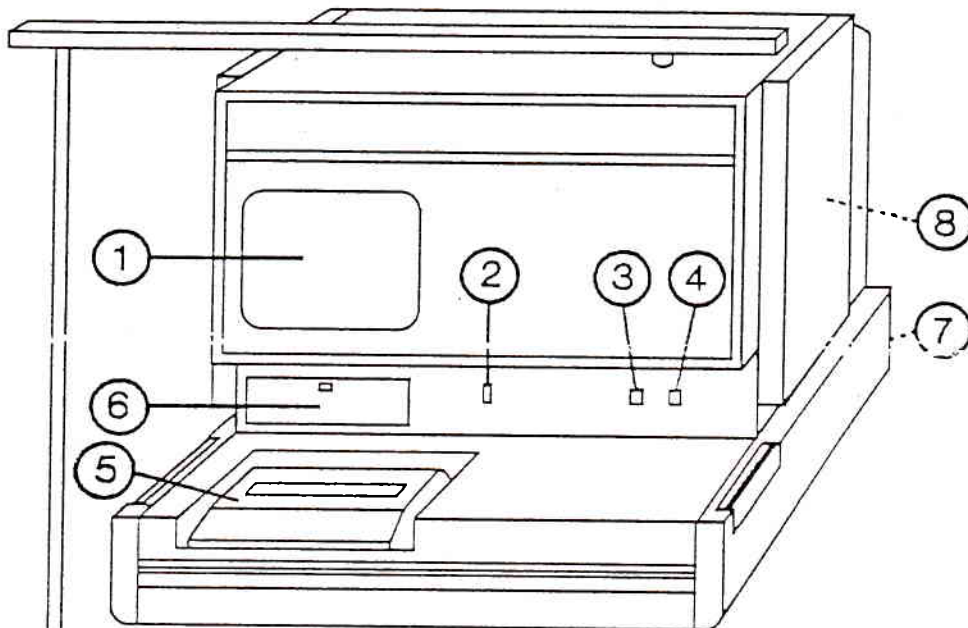




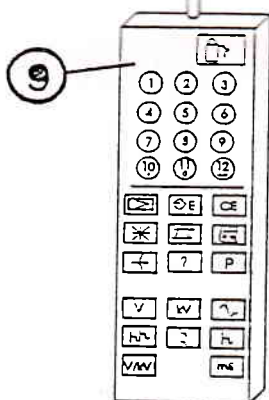
**MCS 2000SL**

**\_\_\_ Quick Reference Guide \_\_\_**

# Quick Reference Guide



- |                                   |                        |
|-----------------------------------|------------------------|
| 1. Video Display Unit (VDU)       | 6. Disk Drive          |
| 2. Gas Bench Pump ON/OFF (Option) | 7. Test Link (Option)  |
| 3. Mains ON/OFF Switch            | 8. Diesel (Option)     |
| 4. Illuminated Sign Switch        | 9. Remote Control Unit |
| 5. Printer (Option)               |                        |



For the functions of the keys, see "KEY DEFINITIONS"

# Tester preparation

1. Insert the MCS system disk V5.2x in the left disk drive (6). (right disk drive is for SDL/STL OPTION). The arrow on the disk must point towards the drive.
2. Connect Volt/Ohm lead clips together and ensure that the test leads and the vacuum hose are not connected to the engine.
3. Switch on the tester with the switches 3 and 4.  
The tester will show several VDU pages (see chart 1) and will eventually show the "program selection page". If an error occurs, it will be displayed on the VDU.
4. With switch 2 you can switch off the pump, the pump will switch it self on whenever it is required for measurements (in this case you have to wait until the flow stabilizes)

## Program

The charts 1 to 4 show you the structure of the MCS program, each block shows the title of a screen and sometimes some additional information. Some keys on the remote control allow you to go directly to a certain point in the program. (Refer to Key definitions). Messages at the bottom of the screen tell you what the tester is doing or which keys you have to press to proceed and/or return to another part in the test program. A more detailed "KEY DEFINITION PAGE" will be displayed when you press the "0" key on the remote control. In KEY DEFINITIONS, the different functions of each key will be given.

## Disks

For the MCS three different type of disks are available, when you use

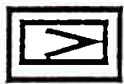
- A system disk you will get the test results but no diagnostics. (Choose "vehicle entry without limits" from the vehicle testing menu).
- A standard limit disk you will get the test results and some diagnostics. (Choose "vehicle selection" or "vehicle code number entry" from the vehicle testing menu).
- A make specific limit-disk you will get the test results and full diagnostics. (Choose "vehicle selection" or "vehicle code number entry" from the vehicle testing menu).

# Connections to vehicle

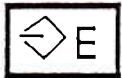
CONNECTIONS	FUNCTION
OIL TEMPERATURE PROBE : Set end stop to length of dipstick and insert into crankcase through dipstick hole.	To measure oil temperature in crankcase.
RED TRIGGER PICK-UP : Clamp on No. 1 cylinder spark plug lead as near to the distributor as possible.	To provide signal for cylinder identification, timing light and DIGI-scope.
VACUUM HOSE : Connect to a source of engine vacuum.	To measure Engine Vacuum.
EXHAUST SAMPLE PROBE : Insert at least 30 cm into vehicle tailpipe (option).	To provide sample of Exhaust Gas to Gas Analyser. (Option).
VOLT/OHM TEST LEADS	Used for Pinpoint testing, LAB-scope and ALTERNATOR scope functions.
CHROME SECONDARY PICK-UP : Clamp on coil high-tension lead.	To measure Secondary Voltages and Durations.
RED CLIP : Connect to the positive (+) terminal of the battery.	To measure Battery Voltage and Alternator Ripple.
BLACK CLIP : Connect to the negative (-) terminal of the battery.	To measure Battery Voltage.
GREEN CLIP : Connect to the negative or Circuit Breaker terminal of ignition coil (KL1).	To measure Dwell, provide a trigger for RPM, input signal for DIGI-scope and to enable Cylinder Shorting for Power Balance Testing.
YELLOW CLIP : Positive or SW terminal of the ignition coil (KL15).	To measure Coil Voltage and to enable Cylinder Shorting for Power Balance Testing.
MAGNETIC TIMING PICK-UP	To measure timing on vehicles with Magnetic Timing Facility. (Option)
GREEN AMMETER PICK-UP : Clamp around all negative battery cables with arrow pointing away from battery.	To measure Starter Current, Amps per Cylinder and Current Flow.
DIESEL TEST LEAD : (Option) - Black : engine ground. - White : Piezo transducer clipped to No. 1 injector pipe.	To measure RPM and Start of Fuel Delivery.

- Note :
- Also see the illustration on the front of the tester.
  - For multimeter, labscope and alternator scope, use the volt/ohm leads.

# Key definitions



- Go to next item in menu pages.
- Go to next cylinder in the running mode of the ignition scope.
- Display next saved pattern in the storage modes of the scope.
- Toggle trigger level up in the running mode of the lab scope.
- Step (up) through character table in data entry pages.
- Toggle between volt and ohm in multimeter 3.



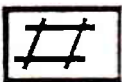
- Go to SDL when you are in MCS mode.



- Back to MCS when you are in SDL mode.



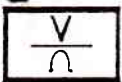
- Go to second column in selection pages.
- Save data in test pages.
- Select fixed ohm range in multimeter 3.
- Freeze pattern in the running modes of the scope.
- Save last 32 patterns in storage mode.
- Go to next entry field in job entry page and customer message page.



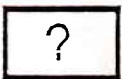
- Enter selection in menu pages.
- Proceed with test, when the tester has given you an instruction.
- Go to next multimeter test.
- Go to the scope running mode when you are in the freeze or memory modes of the scope.
- Go to next line of a data entry page.
- Exit and save at the end of job entry page and customer message page.



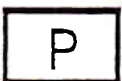
- Print screen (press only a short time).
- To give a form feed, hold this key until paper moves and then release it.



- Go to multimeter 1 in menu and test pages.
- Toggle between ohm and volt in multimeter 3.



- Gives help pages (press again for more help pages).



- Abort or go to menu.
- Skip warm-up in tester warm-up page (15 minutes with a gas bench, 2 minutes without a gas bench).



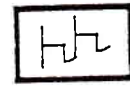
- Select primary pattern in ignition scope.



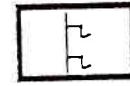
- Select secondary pattern in ignition scope.



- Go to ignition scope from any test page.
- Go to lab scope from ignition scope.
- Go to alternator scope from lab scope.



- Select parade display in ignition scope.



- In ignition scope, select a 100% pattern, swapping each cylinder.



- In ignition scope, select a 100% pattern of one cylinder at the time.



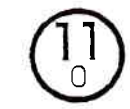
- Step through Y scales in the running mode of the ignition and labscope.



- Step through X scales in the running mode of the ignition and labscope.



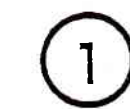
- Go to vehicle testing menu.



- Go to key definition page.
- Clear line in customer message entry.



- Go to previous item in menu pages.
- Repeat test.
- Select auto ohm range in multimeter 3.
- Select previous cylinder in ignition scope.
- Display previous pattern in scope memory modes.
- Step (down) through trigger levels in labscope.
- Step (down) through character table in data entry pages.



- Go to next menu in menu pages.
- Exit key definition, help, vehicle summary and limits page.
- Go to next test page (if available) in test pages and multimeter pages.
- Go to next page of an instruction.
- Activate cursor 1 in ignition and lab scope freeze and memory modes.
- Enter number in data entry pages.
- Step through X scales in the running mode of ignition and labscope.



2

- Gives help pages (press again for more help pages).
- Activate cursor 2 in ignition and lab scope freeze and memory modes.
- Enter number in data entry pages.
- Step through X scales in the running mode of of ignition and labscope.

3

- Go to vehicle description (press again for more pages).
- Toggle grid in/out in ignition and lab scope freeze and memory modes.
- Toggle grid in/out in lab scope running mode.
- Enter number in data entry pages.
- Toggle primary / secondary in the running mode of the ignition scope.

4

- Go to limits page from tests (press again for more limits pages).
- Move selected cursor to the left in the freeze and memory modes of the ignition scope and the lab scope.
- Enter number in data entry pages.
- Step up through Y scales in the running mode of ignition and labscope.

5

- Go to diagnostics page from test and multimeter pages.
- Press again for more diagnostics pages.
- **Move selected cursor to the right in the freeze and memory modes of the ignition scope and the lab scope.**
- Enter number in data entry pages.
- Step down through Y scales in the running mode of ignition and labscope.

6

- Go to storage mode in scope running modes.
- Enter number in data entry pages.

7

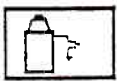
- Step (up) through cylinder swap rates in the running mode of the ignition scope.
- Step through trigger modes in the running mode of the lab scope.
- Enter number in data entry pages.

8

- Step (down) through cylinder swap rates in the running mode of the ignition scope.
- Toggle cursor values in/out in the freeze and memory modes of the ignition scope and the lab scope.
- Enter number in data entry pages.

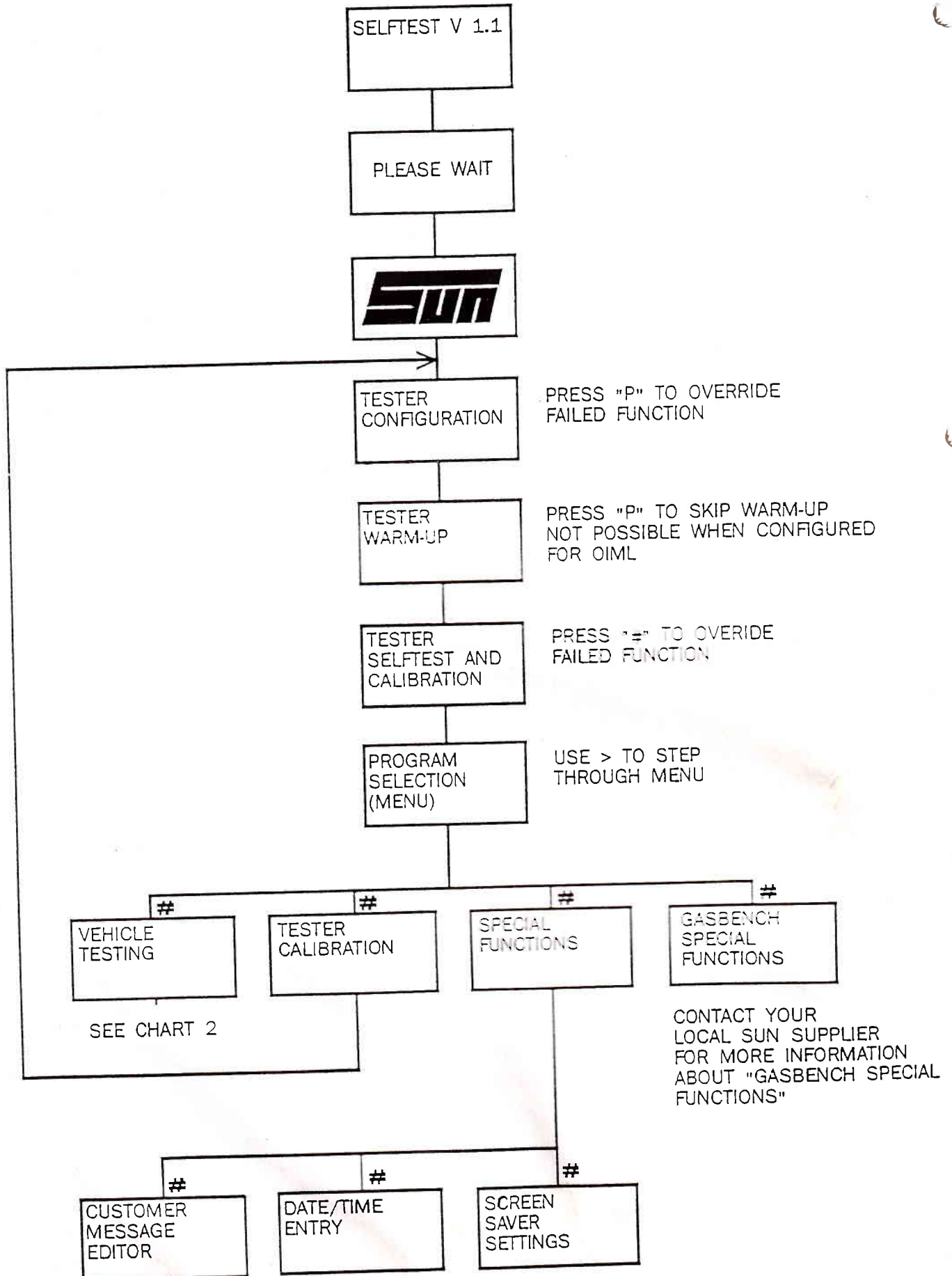
9

- Toggle gasses in/out in all scope modes except the store modes.
- Enter number in data entry pages.



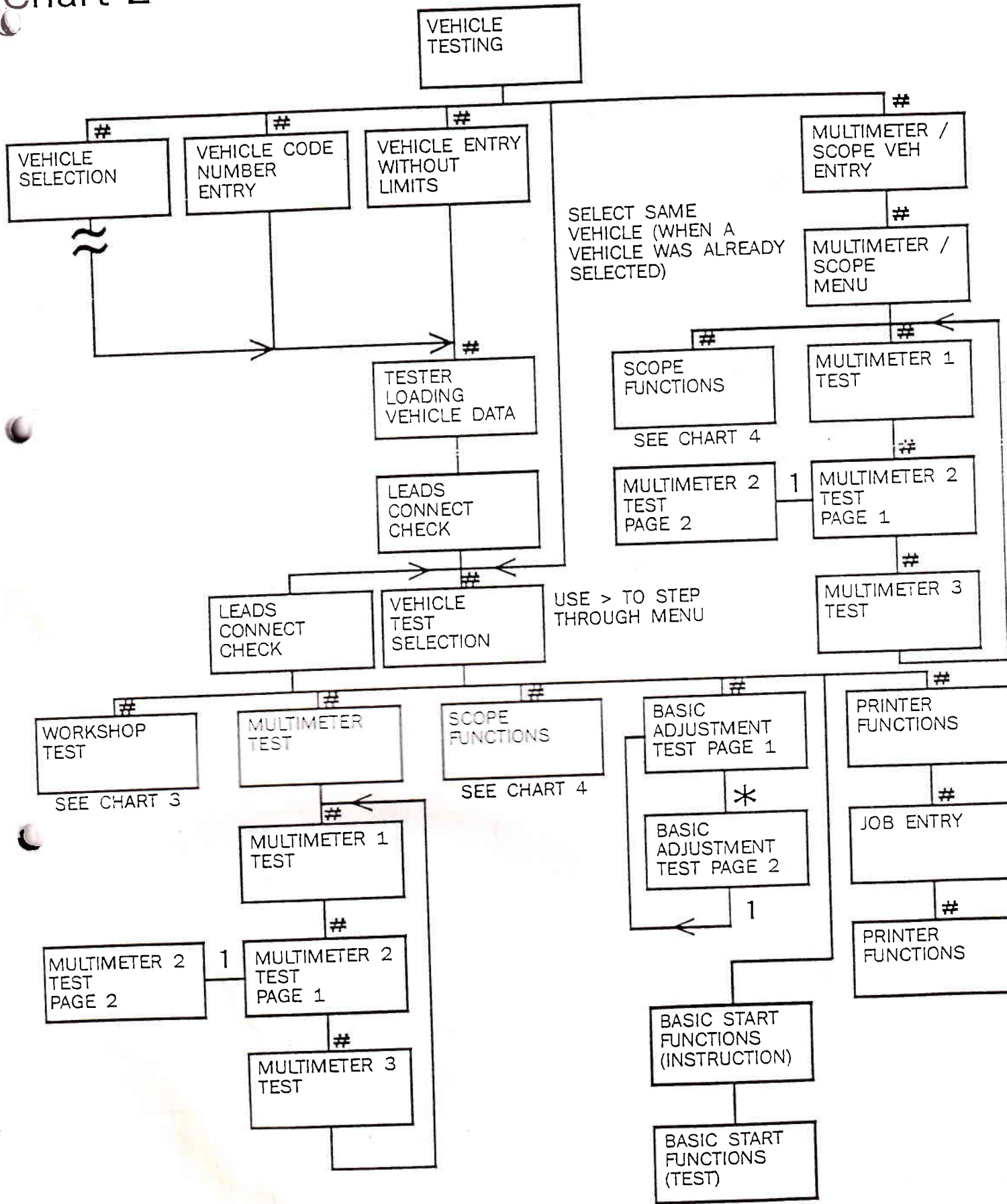
- Engine kill key.

# Chart 1





# Chart 2



# Chart 3

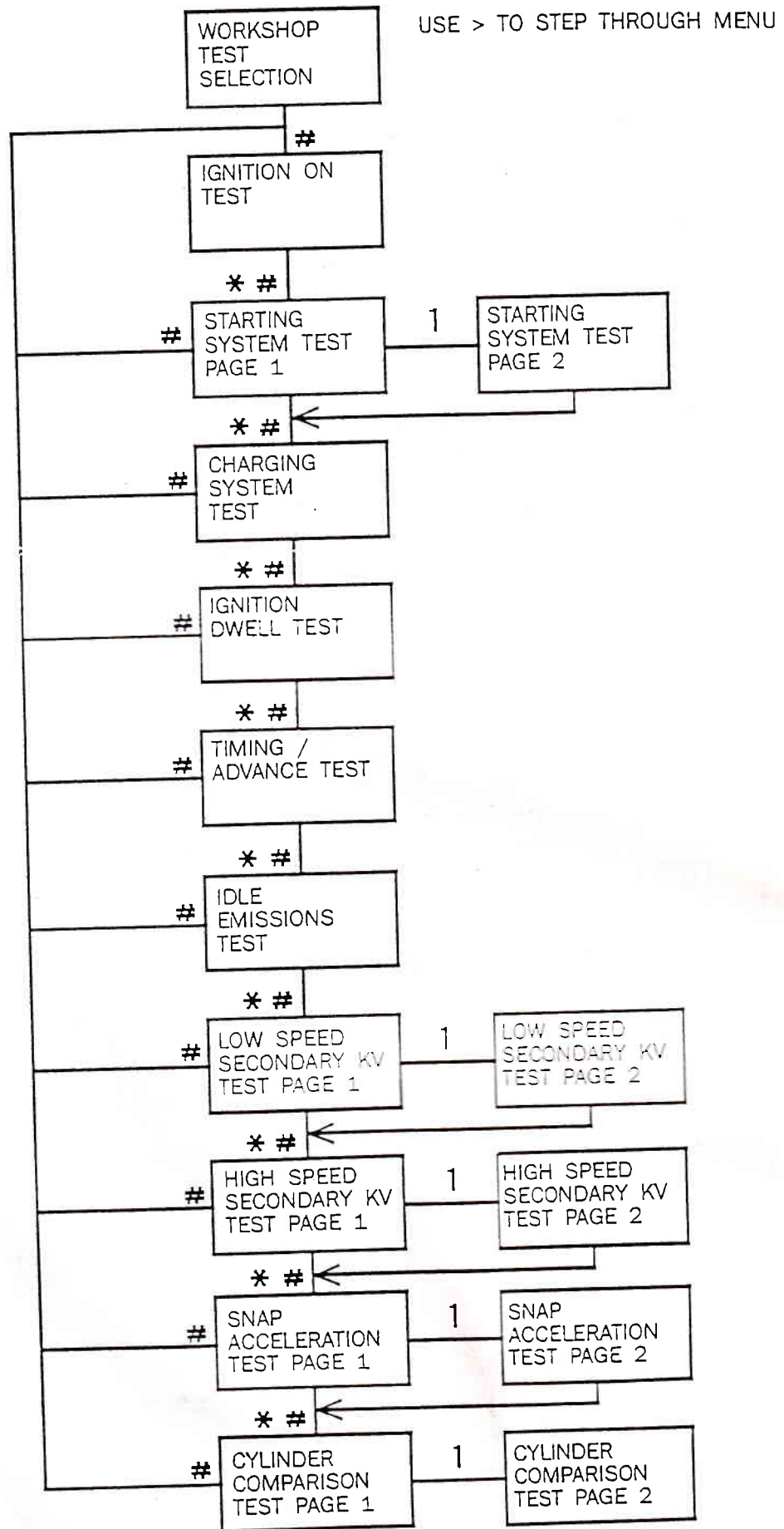
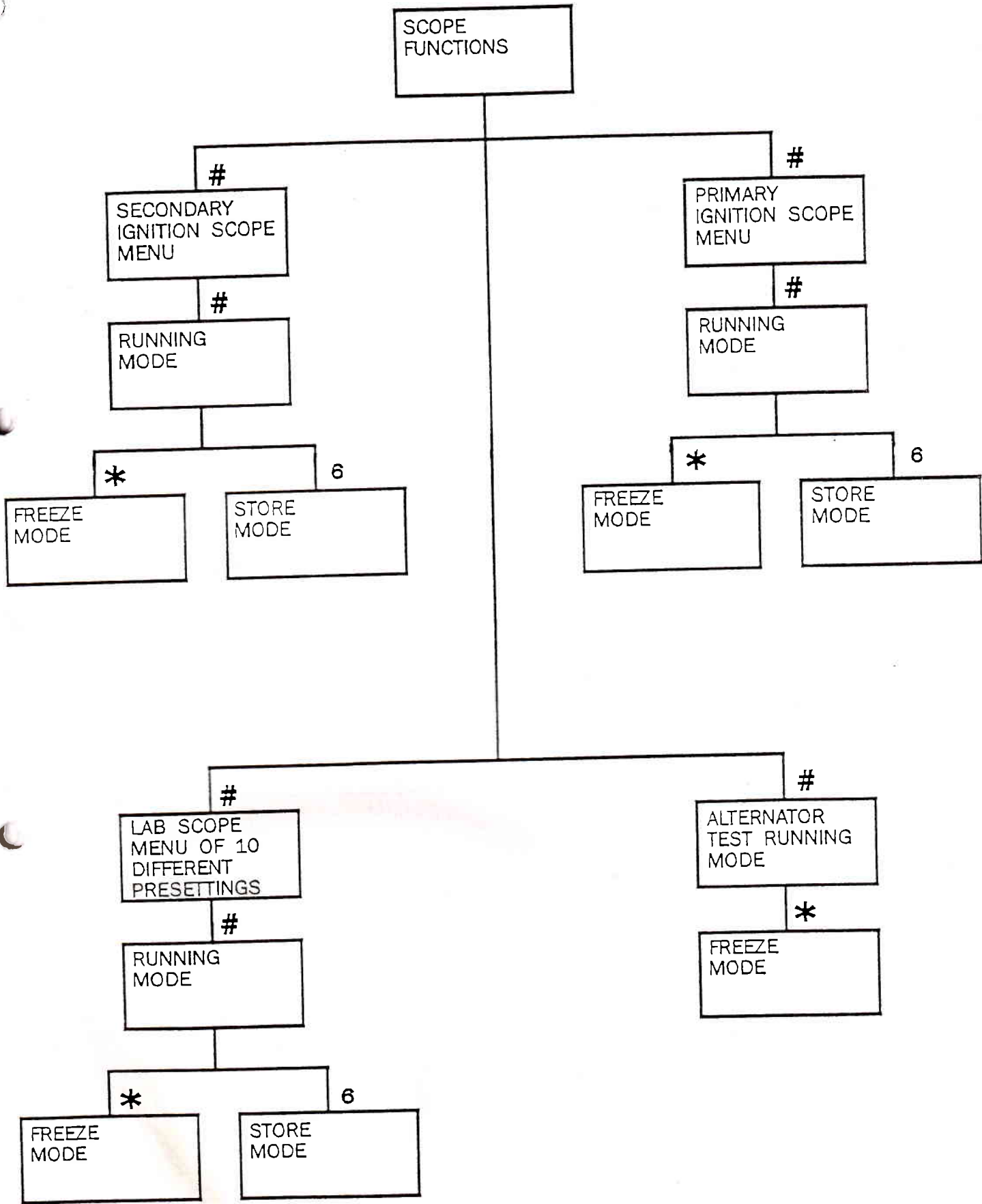


Chart 4



# What to do in case of ...

PROBLEM	DESCRIPTION	ACTION
INTERRUPT XX	SYSTEM FROZEN	SWITCH OFF TESTER AND RE-START
ERROR CODE 84	CRC ERROR IN ID FIELD	INSERT NEW DISK
ERROR CODE 85	CRC ERROR IN DATA FIELD	INSERT NEW DISK
ERROR CODE 87	BUSY BIT ALWAYS SET	INSTALL/REPLACE DISK
ERROR CODE 88	BUSY BIT ALWAYS RESET	INSTALL/REPLACE DISK
ERROR 134	READING PAST END OF FILE	INSERT NEW DISK
ERROR CODE XX		CONTACT SUN SERVICE DEPARTMENT



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SUN ELECTRIC U.K. LIMITED • Oldmedow Road • King's Lynn • Norfolk • PE30 4JW  
Telephone 0553-692422 • Telefax 0553 691844