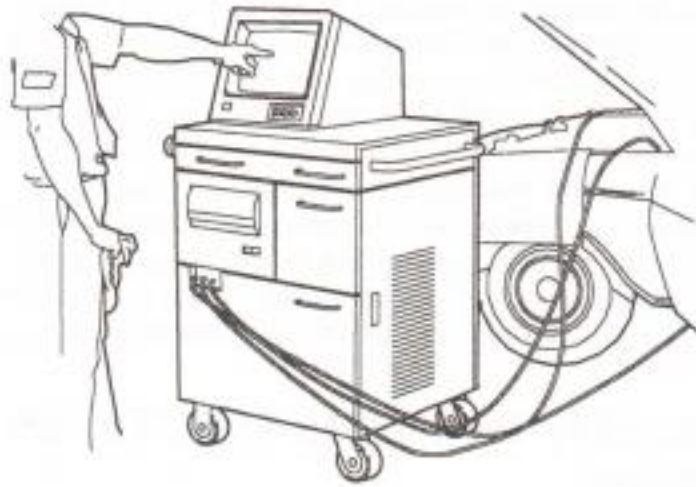


Chapter 13. 5126 Technician Terminal

5126 System



LEX42362

Figure 13-1. IBM 5126 Technician Terminal

The 5126 is a Personal Computer AT-based product developed as a special bid for General Motors (GM) and designed to GM specifications for use in its service bay environment. The 5126 will be sold to Electronic Data Systems (EDS), a subsidiary of GM, which will market the 5126 to the GM dealerships.

The 5126 is used to diagnose electrical/electronic engine and body systems on GM automobiles starting with model year 1982. Initially, the 5126 will be used by the Buick division of GM, but it will migrate to other divisions in the future. The 5126 guides the GM service technician through diagnostics procedures to isolate problems and then verify their completed repairs. The 5126 communicates asynchronously over switched lines with a host system at the GM Information Center, via an internal modem, to receive current GM diagnostic software and repair information and to transmit repair activity data.

Unit Specifications

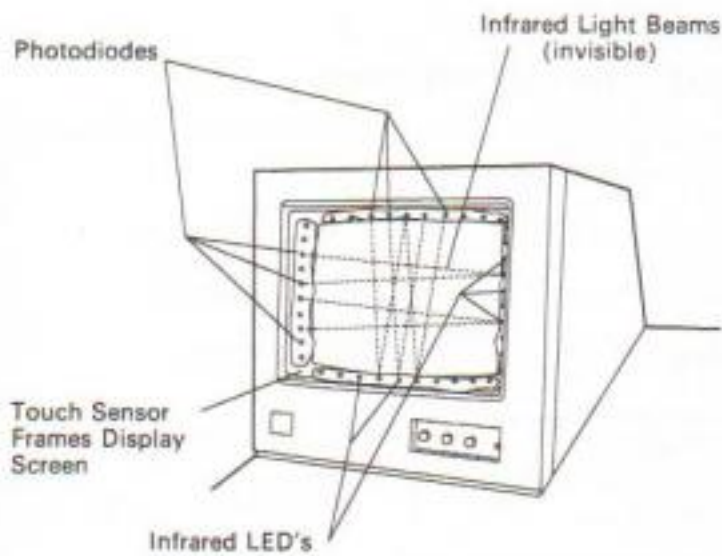
Technician Terminal Size	
Height	1365 mm (53.75 in)
Width	686 mm (27 in)
Depth	660 mm (26 in)
Weight	152 kg (334 lb)
Electrical Requirements	
Voltage	125V AC
Frequency	60 Hz
Current	6 amps max.
Environment (System On)	
Air Temperature	10.0°C to 43.3°C (50°F to 110°F)
Relative Humidity	8% to 80% Noncondensing

Figure 13-2. 5126 Specifications

Features Unique to the 5126

- Infrared touch sensor assembly (special frame surrounding the monitor screen)
 - Used by the operator to interface with the system.
- Power Control Device (PCD)
 - Used for power distribution and remote power-on through communications.
- Assembly Line Data Link (ALDL)/Touch Adapter card
 - Interfaces with the vehicle under test and contains the touch controller microcode.
- Probe Adapter card
 - Used for voltage, current, and resistance measurements.
- Power Adapter card
 - Used for additional power supply connections.
- System Unit Fan Assembly
 - Used for additional air circulation and to filter the incoming air.
- Thermal switch
 - Input device to the processor for internal system temperature.
- Mobile cabinet
 - Area where all hardware is housed.

Touch Sensor Input System

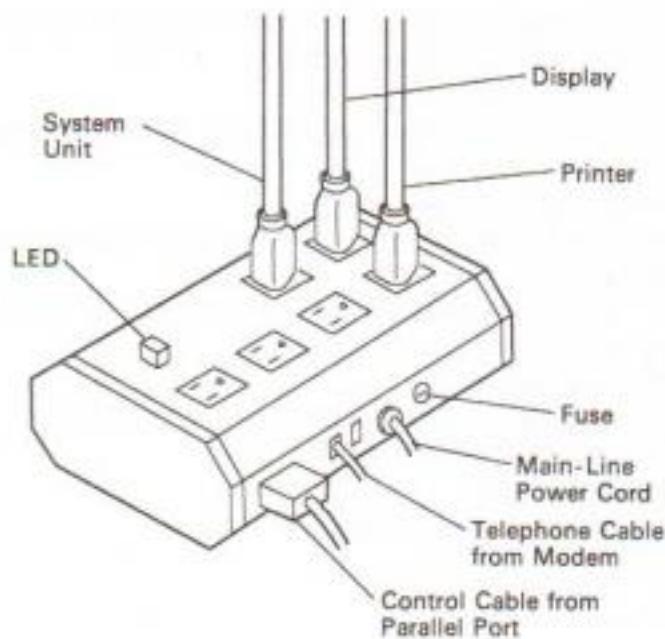


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Figure 13-3. Touch Sensor Input System

The touch sensor is an infrared-transparent frame that mounts to the front of the enhanced graphics display. The touch sensor produces a lattice of infrared beams just in front of the surface of the monitor. These infrared beams are obstructed whenever the monitor screen is touched. The coordinates of the touched location are transmitted to the Personal Computer AT controller via the touch controller located on the Assembly Line Data Link (ALDL) card.

Power Control Device

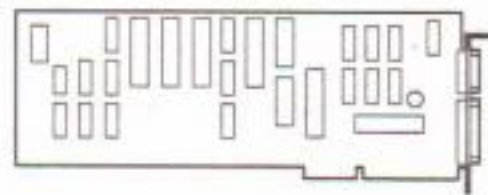


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Figure 13-4. Power Control Device

The power control device is used for power distribution and has remote power-on capabilities. The power control device contains the following: one current sensing receptacle, one CPU receptacle, four peripheral receptacles, two phone line jacks, and a 25-pin D connector. For power distribution, the color monitor plugs into the current sensing receptacle. When the display is powered on, it causes all other devices plugged into the power control device also to power on. To receive service updates and transmit repair data to the GM Information Center, the GM service technician would connect the 5126 to a telephone line after his normal workday. A ring signal will cause the power control device to power up the 5126. After all information has been communicated, the power control device will power down the 5126 when the phone line goes to an On-Hook condition.

Assembly Line Data Link/Touch Adapter

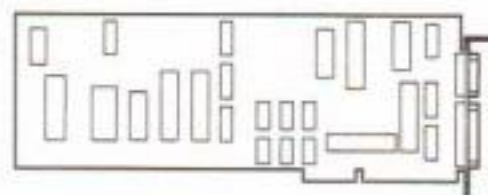


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Figure 13-5. Assembly Line Data Link/Touch Adapter

The ALDL card occupies slot 5 of the system unit and interfaces with the automobile under test. The ALDL interface connector is located in the automobile under the dash near the steering column. This interface relays dynamic data to the 5126. This data is a real time presentation of the automobile's state. The 5126 then analyzes the data using stored values and specifications previously defined by GM service engineers. The ALDL card also contains an EPROM module for the touch controller hardware.

Probe Adapter Card



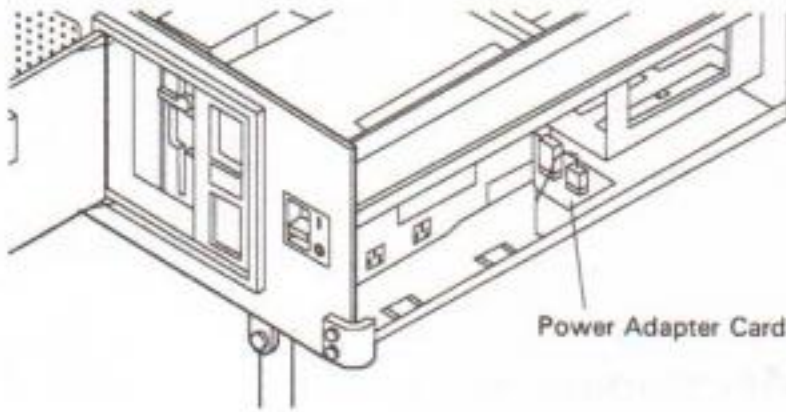
LEX42401

Figure 13-6. Probe Adapter Card

The Probe Adapter card is a multifunction attachment card located in slot 6 of the system unit. It allows a

GM service technician to further isolate a failure on a vehicle to a part or component that can be repaired, replaced, or adjusted. The functions performed by the Probe Adapter card are controlled by a service procedure interactively requesting the GM technician to take readings, inject source voltage/ground, or verify circuit paths as operational. The data obtained by the Probe Adapter card is presented to the GM service technician via the service procedure in visual or printed form for analysis.

Power Adapter Card

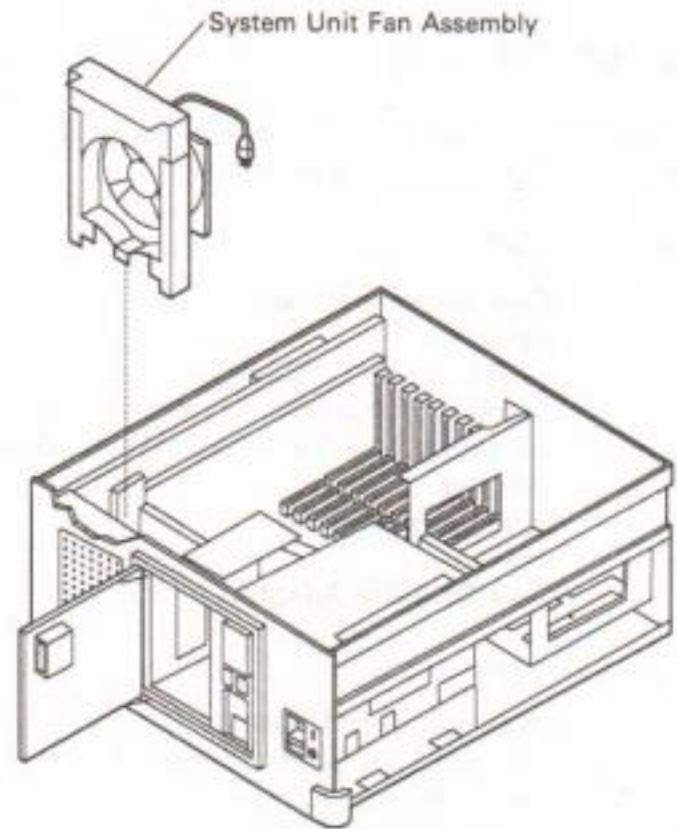


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Figure 13-7. Power Adapter Card

The Power Adapter card is located between the rear of the power supply and the fixed disk drive. Its purpose is to provide additional power supply connections and to extend the power supply wires to the system board. There are no active electronic components on this card; it functions solely as a power distribution board for the power supply.

System Unit Fan Assembly

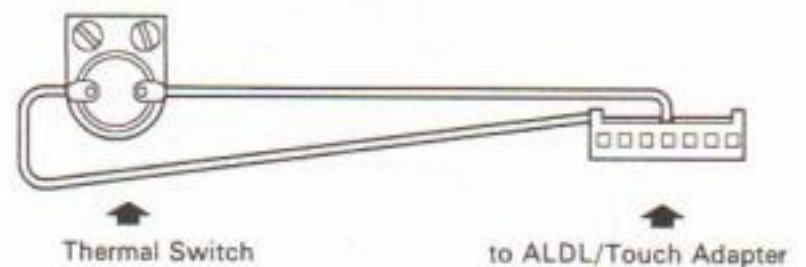


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Figure 13-8. System Unit Fan Assembly

The system unit fan assembly contains a fan for additional air circulation and has a user-removable air filter. This filter protects the system unit from any particles that might enter and damage the system unit. The customer is responsible for cleaning and changing this filter, which fits into a slide-out filter retainer at the front of the system unit.

Thermal Switch



LEX42368

Figure 13-9. Thermal Switch

A thermal switch is located on the front of the disk drive mounting plate. Two wires connect the switch to a Berg connector on the ALDL/Touch Adapter. If the temperature gets too high in the system unit, this normally closed switch opens, producing a processing interrupt. This causes programming to issue a warning message on the display stating the 5126

internal temperature is too great and the air filter should be checked.

Card Locations

There are two possible card configurations in the system unit. They are shown as follows:

As shipped by IBM:

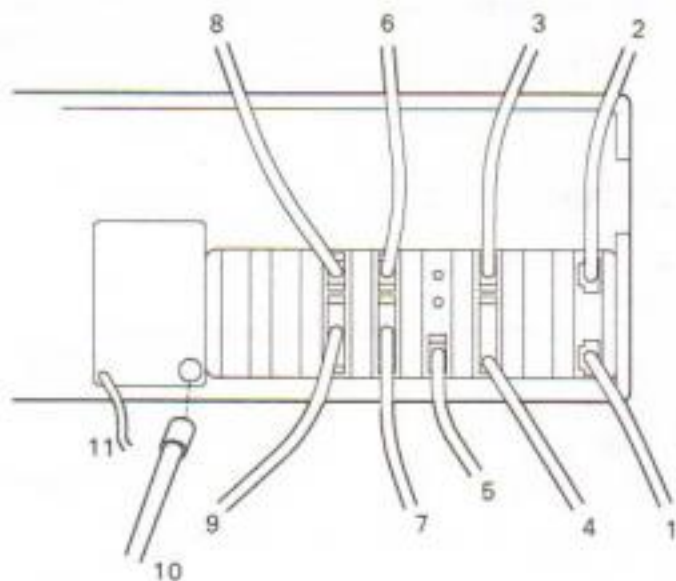
Slot 1	IBM Internal Modem
Slot 2	Open
Slot 3	Serial/Parallel Adapter
Slot 4	Enhanced Graphics Adapter (EGA)
Slot 5	Assembly Line Data Link (ALDL)/Touch Adapter
Slot 6	Probe Adapter
Slot 7	Open
Slot 8	Disk/Diskette Adapter

As shipped by EDS:

Slot 1	IBM Internal Modem
Slot 2	Enhanced Graphics Adapter (EGA)
Slot 3	Serial/Parallel Adapter
Slot 4	128Kb Memory Card
Slot 5	Assembly Line Data Link (ALDL)/Touch Adapter
Slot 6	Probe Adapter
Slot 7	Open
Slot 8	Disk/Diskette Adapter

2. Telephone line out	Slot 1 - Internal Modem to PCD
3. Printer cable	Slot 3 - Serial/Parallel, Serial
4. PCD interface	Slot 3 - Serial/Parallel, Parallel
5. Enhanced Color Display	Slot 4 - Enhanced Graphics Adapter
6. Touch Sensor	Slot 5 - ALDL/Touch Adapter
7. ALDL cable	Slot 5 - ALDL/Touch Adapter
8. Battery cable	Slot 6 - Probe Adapter
9. Probe cable	Slot 6 - Probe Adapter
10. Keyboard cable	Keyboard connector through opening near keyboard connector
11. Speaker cable	

System Unit Rear Panel Cables



LEX42369

Figure 13-10. System Unit Rear Panel Cables

1. Telephone line in	Slot 1 - Internal Modem
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Maintenance

The 5126 is serviced in a unique manner. A GM national help desk includes the Technical Assistance Center (TAC) that provides telephone aid to the end user with problems or questions about the operation of the 5126. TAC offers primary software/application support to GM dealerships and helps decide if a problem is software or hardware related. If the problem is an operational one, the TAC will instruct the end user on the proper procedure. If the problem is determined to be application software, GM will perform its own software maintenance. If the problem is determined or suspected to be caused by defective hardware, the TAC will pass the call to the CAMS Central Support Center (CCSC). The CCSC is another function of the GM help desk. The CCSC will contact IBM for on-site service. The CCSC will include in the comment section of the call its 800 WATS number and the most provable fix for the reported problem.

The CE is required to call the end users of the 5126 to advise them of the estimated time of arrival (ETA). It is the end user's responsibility to inform the CCSC about the status of the call. If the CE has a question regarding the reported failure which the end user cannot answer, the CE may call the CCSC for clarification. The CE is required to call the CCSC after the call has been completed to inform it of what was done to resolve the problem and what part(s) were replaced.

If the battery cable, probe cable, or suppression unit needs replacement, the end user will order it through GM.

It is important that the CE performs a system checkout using the Problem Isolation Charts (PICs) in the *Maintenance Information Manual* (MIM) each time the 5126

is serviced. It is especially important for the ALDL, probe, and modem that the CE follows the PICs in the *MIM* before responding to on-screen prompts to ensure that all related portions of the associated adapter cards are tested. While running diagnostics, the CE will be prompted when to use the docking station connectors, probe align station, or one of the wrap plugs.