**Patents**

To obtain a list of patents that relate to the design of the multifunction display system, two sites on the internet were used. Using the keywords “display,” “vehicle,” “car,” and “dashboard,” searches were conducted on IBM’s website (www.patents.ibm.com) and on the United States Patent and Trademark Office’s website (www.uspto.gov). The IBM site was consulted first, and a subsequent search of the US P.T.O. site yielded identical results. Hardcopies of the patent summaries from the IBM web pages were obtained and are included in this document. The patents are as follows:

- **US4293843 - Motorcar Dashboard:**
  Pushbutton-controlled electronic dashboard display

- **US4109235 - Electronic-Display Instrument Panels for Automotive Vehicles:**
  Dashboard with sensor input signal manipulation

- **US3866166 - Digital Multigage for Motor Vehicle**
  Monitoring and display of vehicle warnings
Standards

To obtain a list of standards that relate to the design of the multifunction display system, a web search similar to the patent search was conducted. The same keywords for the patent search were used for the standards search. Although the majority of the standards found on the web were obtained from the SAE website, each of the following sites were searched:

- American National Standards Institute – www.ansi.org
- NSSN – www.nssn.org
- Institute of Electrical and Electronics Engineers – www.ieee.org
- International Society for Measurement and Control – www.isa.org
- Society of Automotive Engineers – www.sae.org

The following is a list of the standards obtained along with a brief description of each:

- **981105**: Performance evaluation of Multiplexing Protocols

- **ISO11898**: Interchange of digital information (CAN)

- **J1583**: CAN vehicle serial communication protocol

- **ISO11519/2**: Low-speed serial data communication (CAN)

- **J2217**: Instrument display panel visibility

- **ARP4256**: Design objectives for LCDs
• **ANSI/EIA 498AAAA-1992:**
  Short stroke keypad specifications

• **ARP4102/8:**
  Head-up display design recommendations

• **AS8005:**
  Temperature sensor performance specifications

**References**

The following sources were referenced in the initial design stage of the multifunction display system:


