



Marconi



MADE

Mobile
Automatic
Data
Experiment

Marconi Research Laboratories

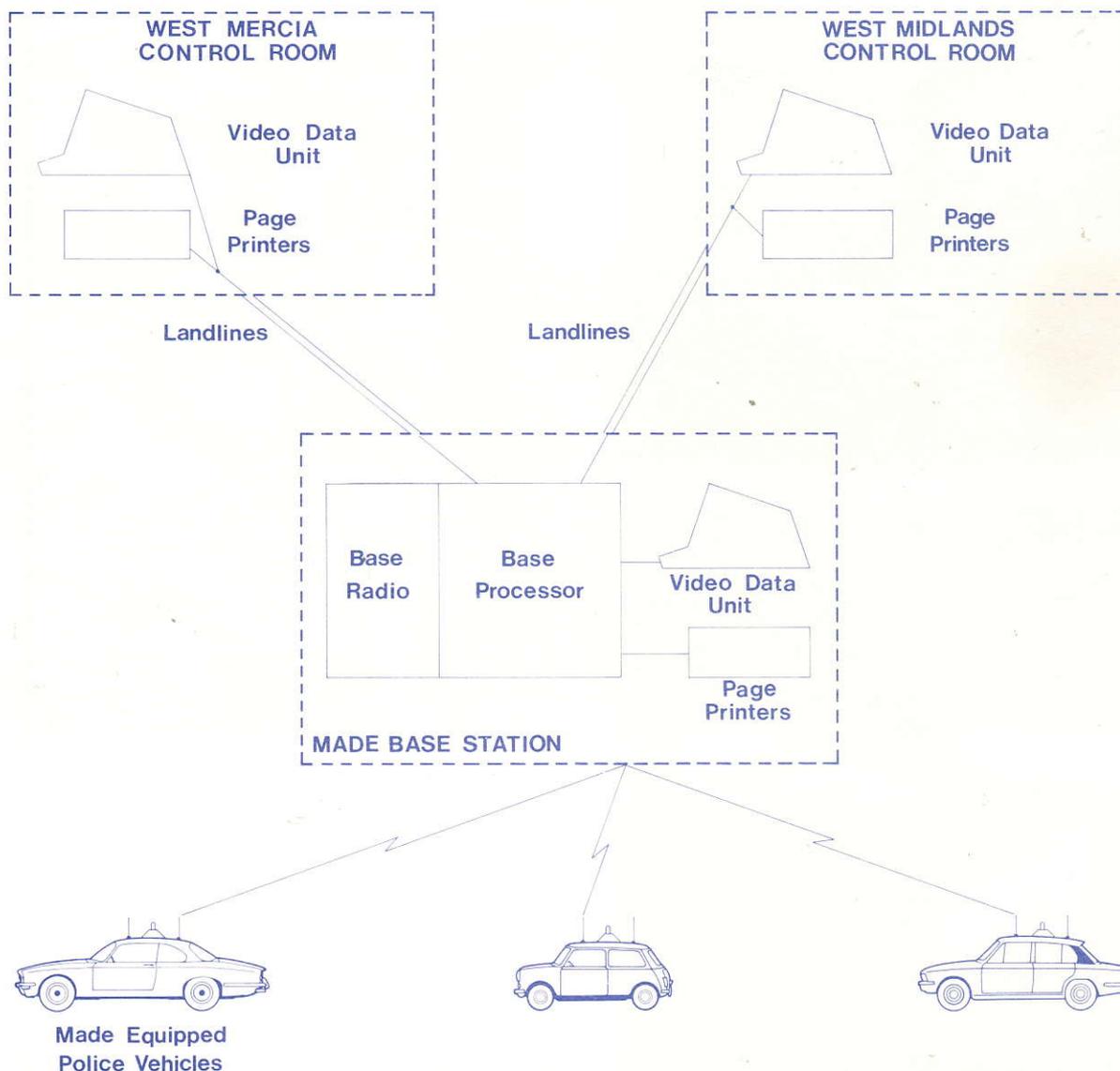
MADE Mobile Automatic Data Experiment

Marconi Research Laboratories, under a Home Office contract, have developed a range of integrated mobile equipments to meet the requirements of a Police Study Group for the Mobile Automatic Data Experiment. The purpose of MADE is to evaluate benefits to the police of using a number of data communication devices mounted within police vehicles. These devices provide a means whereby the Police officer has direct access via a high integrity, high speed, two-way datalink to his controller at his Force Control Room. Data messages are stored at the processor pending the return of a Police officer to his unattended vehicle. MADE is being conducted with the assistance of the West Mercia and West Midlands Police Authorities, and the MADE System comprises a number of

suitably equipped Police vehicles of both Police Forces, a central mobile radio base station and associated communications processor with landline links to each Force Control Room.

In addition to the mobile equipments, Marconi Research Laboratories were responsible for the overall system design, development, installation and commissioning including the software control program for the system processor.

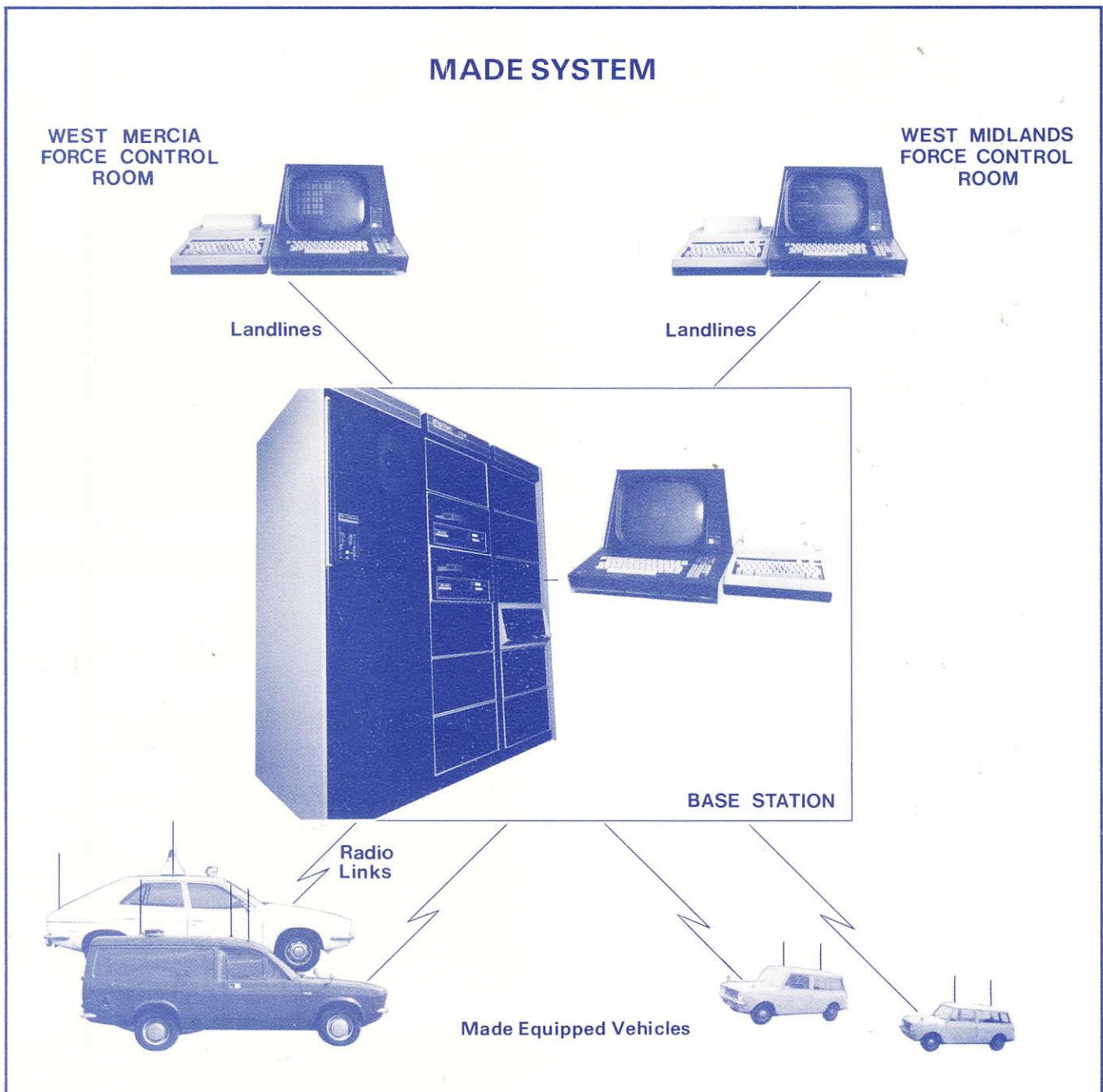
MADE SYSTEM SIMPLIFIED SCHEMATIC DIAGRAM



The MADE System

The feasibility of high speed, high integrity data exchange using mobile radio channels was demonstrated by Marconi Research Laboratories earlier in the MADE programme: the same techniques with some additional features are used in the operational MADE System for evaluation. Each of the specially equipped MADE Police vehicles is linked to the base station of the MADE System by a datalink operating over a mobile radio channel at 1200 bits per second. High integrity is provided by protecting every data block with an error detection code, and corrupted blocks are automatically repeated. The base station is the heart of the MADE System. This comprises a GEC-Marconi base radio interfaced to a medium-sized 'mini' computer. The computer or communications processor provides the necessary

procedural management of the datalink, including store and forward data communication between the Force Control Rooms and their vehicles; vehicle polling and status information updating; plus basic operational and technical supervisory tasks associated with the MADE System and its evaluation. The System is designed to service two Force Control Rooms or command centres and up to 300 MADE equipped Police vehicles. The two Force Control Rooms are linked to the MADE System by landlines. Each Control Room is equipped with a MADE VDU terminal with local data storage and two hard copy printers. Control and regular updates of information for these devices is provided by the remote MADE System base processor.



Vehicle Installation

The integrated mobile equipments developed for MADE are the coded message unit, the alpha-numeric keyboard and associated text display, the touchmap and column text printer for permanent copy. These equipments are connected into the system via a MADE data unit, which operates in conjunction with a two-channel full duplex mobile data radio. For the MADE evaluation this radio is in addition to the normal voice mobile radio. The MADE data unit is normally installed in some convenient space e.g. the boot of the vehicle, and is linked to the equipments in the passenger compartment via a distribution module, which incorporates auditory status signalling.

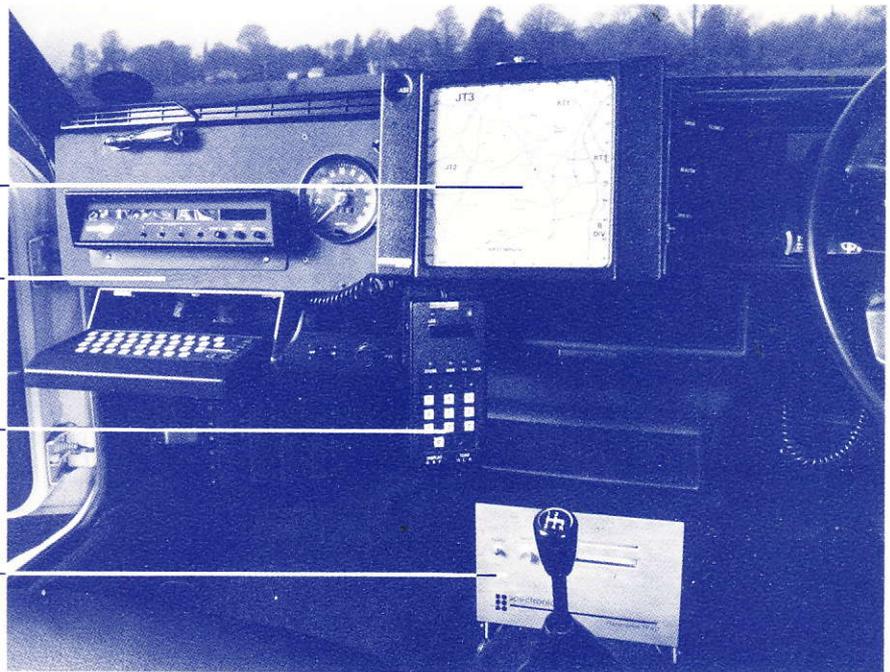


Marconi touchmap _____

Keyboard and display _____

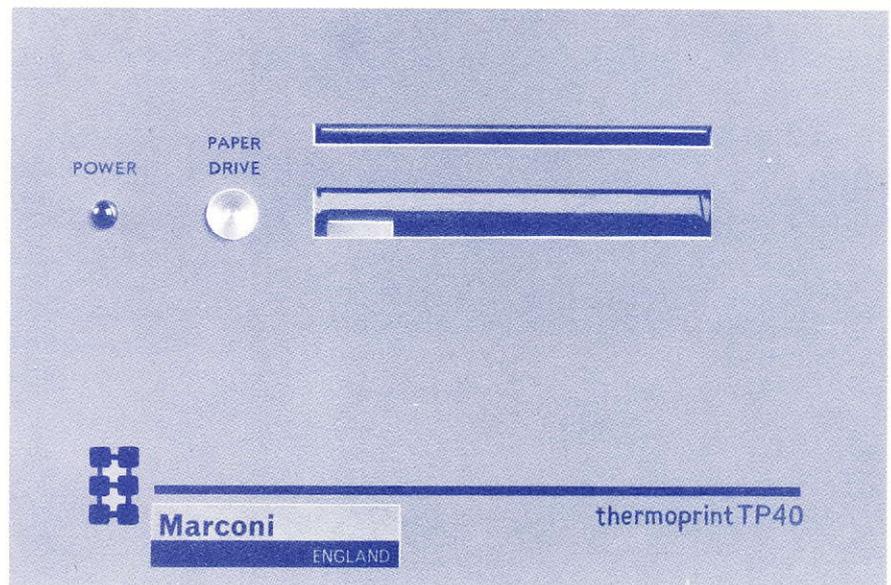
Coded message unit _____

Printer _____



Printer

A miniature printer is fitted to provide permanent copy of data exchanged between the controller and the police vehicle. This printer uses a 5 x 5 dot matrix thermal printhead on heat sensitive roll paper for each character, prints thirty-two characters on a line and can operate at ten characters per second.





Coded Message Unit

The coded message unit is a small hand-held data communicator, enabling the Police officer to send or receive data in coded message form using up to three decimal digits. Data is entered via the small keyboard, displayed for checking and transmitted under the Police officer's control. Incoming messages are displayed and require his acknowledgement before they are cleared. Status indicators for the MADE vehicle installation and additional keys for control and alarm signalling are incorporated into the unit.

Home Office photo



Keyboard and Display

The alpha-numeric keyboard is a slimline keyboard of conventional typewriter layout with minor differences for this application, and may be folded out of the way when not in use. Associated with the keyboard is an electronic alpha-numeric soft copy display of thirty-two characters. Storage is provided on a line-by-line basis for up to four lines of thirty-two characters. Each line may be selectively displayed and/or corrected.

The keyboard and display provide a mobile terminal for the input and receipt of more varied data than can be accommodated by the coded message unit, enabling detailed messages and reports to be composed and exchanged over the datalink.



Touchmap

The Marconi touchmap is a convenient, accurate means of reporting positional information. To report location, a map of the area is inserted into the touchmap frame and the appropriate point of the map is pressed. This touching of the map is electronically detected, the position of the touch, and thus the location, is determined by a grid system behind the map. Each map is specifically identified to indicate the area covered and the map scale. Data relating to map and position are automatically encoded and transmitted over the datalink to report location. Alternative maps may also be inserted in the touchmap frame, and the appropriate touch causes the relevant data to be automatically transmitted.

Home Office photo

All of these integrated equipments may be fitted into each vehicle installation, but obviously they are not all required at once. Thus the system has been designed to work automatically with vehicle installations having only some of these equipments. During the MADE evaluation, lesser vehicle installations will also be assessed.



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The mobile equipments developed for the MADE System provide a convenient, clear interface for the exchange of data between the mobile Police officer and his controller. This data is automatically transmitted over a high integrity datalink, essential in applications where accuracy and reliability are of paramount importance.

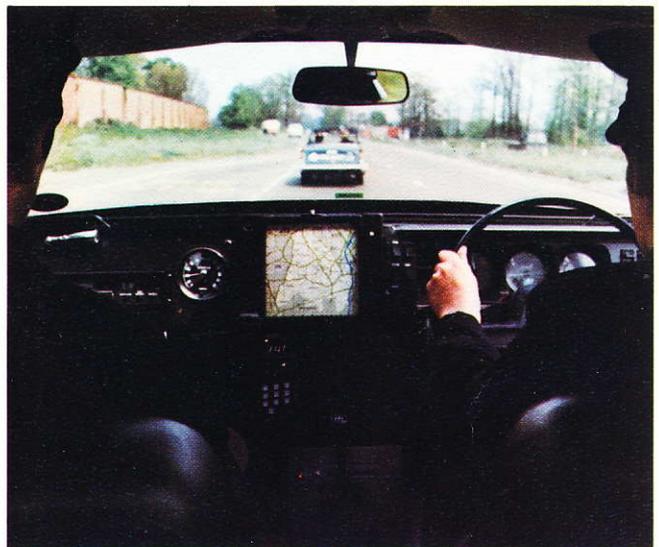
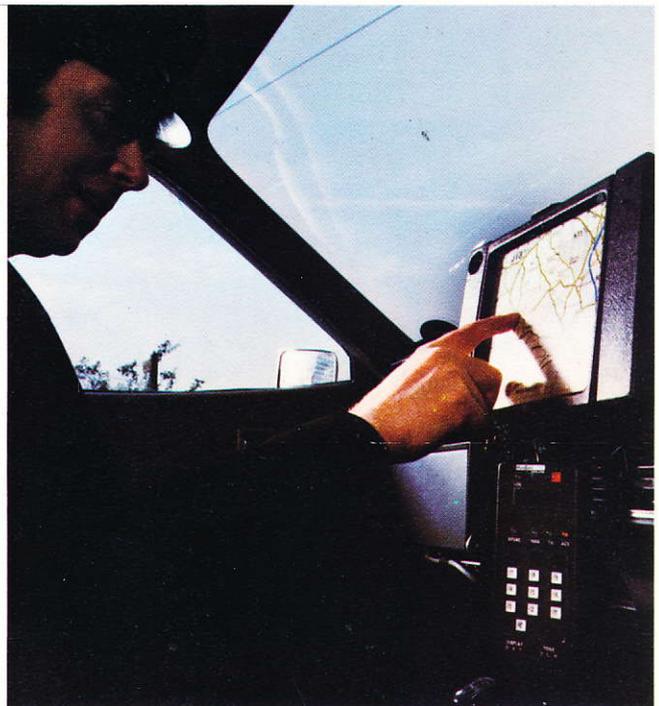
The MADE System and its equipments were designed to meet the requirements of the Police user, but obviously they are suitable for much wider applications: Automatic Vehicle Status Monitoring, Location Reporting, Data Interchange etc. In fact any application where accurate, automatic or semi-automatic, reliable data transfer between a mobile, its operator and its base is required, e.g. Public Authorities, Electricity, Gas and Water Authorities.

The datalink control software is fundamental to the overall data integrity of this system and was produced for the MADE requirements. The design of this software is sufficiently flexible for it to be readily adapted to meet other requirements.

As we are always seeking to improve our products, the information in this document gives only general indications of product capacity, performance and suitability, none of which shall form part of any contract.



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