MOBILE ELECTRONIC & SECURITY FEDERATION

CODE OF PRACTICE

INSTALLATION

LIGHT AND HEAVY GOODS VEHICLES

This document has been produced by the
MOBILE ELECTRONIC & SECURITY FEDERATION

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PREFACE

This code of practice is to assist vehicle security equipment installers in providing end users with efficient and reliable systems.
It is recommended that this Code of Practice is read in conjunction with the MESF Installation and Customer Service Cars and Light Vans Code of Practice.

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MOBILE ELECTRONIC & SECURITY FEDERATION

LIGHT AND HEAVY GOODS VEHICLES
INSTALLATION CODE OF PRACTICE

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A REQUIREMENTS

i. Pre-Installation Inspection Condition of Vehicle

a) Note condition of vehicle bodywork and interior.
b) Note condition of vehicle systems.
c) Record any defects found before starting installation work and where possible report these to the customer.
d) Retain copy of records.

ii. Preparation

a) Due care and consideration for the customer's property must be taken at all times. Consideration should be given to conform to Health and Safety Acts and customer's own Health and Safety requirements.
b) Fit seat covers.
c) Fit wing covers where applicable.
d) Remove vehicle trim or any other necessary components using correct tools.
e) Store trim and fixings in a clean, safe and dry area.
f) In the interests of personal safety installation engineers should remove or insulate any items of jewellery on or about their person that may, in the event of an accident become conductive, such as rings, watches, etc. It is recommended that the installation engineers should remove or protect rings, watches, etc.
g) Where appropriate protective clothing should be worn.
h) Where appropriate disconnect the earth terminal of the vehicle battery and insulate against accidental reconnection.

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B PRECAUTIONS

i. General Requirements for Installation of Components

a) Ensure that any specific installation requirements supplied by the manufacturer are followed. This shall include only interruption or connecting into those circuits or components specified by the vehicle manufacturer or security system manufacturer. If in doubt, contact the relevant manufacturer for technical assistance.

b) Check if re-programming procedures are required for audio system, engine management or any other system.

c) Check that any necessary re-programming procedures are available.

d) Take appropriate safety precautions in respect of air bags, if fitted, and seat belt tensioners.

e) Care should be taken when tilting the cab of an HGV. This must be done in accordance with the vehicle manufacturer's instructions. Check that there are no loose items that could be damaged or cause damage.

ii. Drilling, Cutting and Welding

a) ENSURE THAT NO COMPONENTS, WIRING OR EQUIPMENT CAN BE DAMAGED PRIOR TO CUTTING, DRILLING, OR WELDING.

b) Remove burrs from holes drilled in the metal bodywork.

c) Where necessary protect holes or other components using an anti-corrosion treatment.

d) Remove all swarf from the vehicle.

e) Fit grommets where wiring is to be routed through body panels and seal against the ingress of water and fumes.

f) Ensure that the structural integrity of the vehicle is not reduced.

g) Where electric welding is to be carried out the vehicle battery should be disconnected to safeguard electrical equipment on the vehicle.

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C BASIC ELECTRONIC SECURITY INSTALLATION

i. Positioning of Security Equipment

a) All electrical and electronic components (excepting key-switches) of the security system shall be installed in accordance with one of the following procedures: -

   a) In an enclosed area protected by a mechanical locking system,
   b) Or in a secure area with locking facility and protected by the security system
   c) Or by having the access mechanism located in a secure area.
   d) Protected against corrosion arising from road spray.

b) All component parts of the security system shall be fixed in an enclosed area where they will not cause injury.

c) Where practicable, ALL electrical and electronic components of the security system except allowable visible indicators shall be concealed from view.

d) All component parts of the security system shall be securely fixed to the vehicle using plated screws and shake proof washers or bolts with either locking nuts or nuts with shake proof washers, or with metal rivets, or secured in such a way so as it cannot be moved or removed without special tools.

e) Component parts shall not be fixed to harness, hoses or pipes, unless specifically designed for that purpose.

f) All component parts of the security system shall be fitted in such a way as to:

   a) Avoid fouling moving parts.
   b) The fixings used to secure the component parts of the system shall not protrude in such a way as to constitute a hazard.
   c) Be in accordance with manufacturer instructions and recommendations.
   d) Ensure components do not vibrate or rattle.
   e) Prevent chafing on cables or pipes during normal operation.
   f) Components should be fixed to avoid audio interference.
   g) Double-sided tape of industrial quality is permitted when used strictly in accordance with the manufacturer's instructions.

ii. Interconnecting Wiring

a) The insulated cables used for the installation of a security system must be of automotive standard and comply with BS6862 or the vehicle manufacturer's specification.

b) The use of intruder alarm cable, telephone cable and household type cables, i.e. solid-core non-flexible cable, is not permitted. The only exceptions to the above are:

   a) The fitting or certain pre-wired detectors and sensors, which allow only for the use of intruder cable.
   b) Intruder alarm cable may be used providing that the interconnecting wiring is no longer than 1 metre and terminated in a suitable junction box. This interconnecting wire must not exit the protected area that the device covers.

c) Cable runs should be kept as short as possible.

d) Where necessary, interconnecting insulated wiring shall be protected against the damaging of vibration leading to chafing by the use of sheathing, armouring, plastic ducting and flexible conduit or other mechanical means

e) The wiring should be:

   a) Adequate for the current rating of existing circuits;
   b) Securely fixed;
   c) Be protected by grommets or any other mechanical means when passing through bulkheads;
   d) Not be readily identifiable;
   e) Be protected from external attack on the vehicle by mechanical or electronic means;
   f) Be protected from damage during the normal operation of the vehicle.

f) All wiring should be installed in such a way that it does not interfere with the normal operation of the vehicle control

g) All wiring should be installed such that where the vehicle light and or indicator circuits are connected as outputs of the security system, the system is protected by an appropriate short circuit or over current device.

h) All wiring should be secured in place with suitable clips, screwed, riveted, bolted or tie-wrapped. It is recommended that the wiring should be secured at intervals not exceeding 500 mm. The use of self-adhesive clips is not permitted.

i) Where wiring is open to physical damage during normal use of the vehicle it shall be protected by the use of sheathing, armouring, plastic ducting and flexible conduit or other mechanical means.

j) It is recommended that all exterior wiring should be in one continuous length avoiding joints.

iii. Connections:

a) All interconnecting wiring connections shall conform to one or more of the following methods: -

   a) Solder connections should be protected by suitable heat shrink sleeving or self-amalgamating tape. Solder connections shall be made using non-corrosive solder.
   b) Insulated crimp type connectors, crimped using the correct ratchet crimp tool.
   c) Vehicle manufacturers recommended method of termination.

b) Connections to security components that are to be used in areas external of the passenger or load compartment, i.e. in the engine compartment or in exposed locations underneath the vehicle, should be suitably waterproof to avoid corrosion.

c) All unused terminals or wires shall be insulated using termination methods as above.

d) It is recommended that where possible all connections should be made within the vehicle.

e) The use of Insulation Displacement Connectors is not permitted.

f) Twisted and taped joints are not permitted.

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D. SPECIFIC REQUIREMENTS FOR INSTALLATION OF COMPONENTS RELATING TO ALARM SYSTEMS.

i. Control Units

a) Where the Electronic Control Unit (ECU) and or immobiliser are separate from the audible warning device, the ECU shall, where possible, be mounted behind the dashboard or in a position that is not easily accessible.

b) Self powered units that are complete with their own integral sounder should be fitted in the load compartment, preferably as high as possible and to the front of the vehicle, or in a protected area of the cab, venting externally.

c) Consideration will be to be given to special vehicles, such as refrigerated bodies.

d) Where a sounder vents externally through a louvered grill, it shall be adequately protected against water ingress.

e) The control unit should be securely fitted using plated nuts and bolts with shake proof washers or nyloc nuts or rivets of a size suitable for the application.

ii. Power Supply Wiring

a) The power supply wiring shall be kept as short as possible.

b) The power supply wires(s) shall be connected to an unfused power supply in a secure area, via a dedicated fuse or circuit breaker with a correct rating in accordance with the security system manufacturer's instructions.

c) Fuses should be placed within 300 mm of the supply terminals.

d) The practice of centre tapping on 24v vehicles is not permitted.

e) No other electrical equipment shall be connected to the fuse protected side of the security system power supply.

f) All connections to the security system power supply shall be in an enclosed or secure area. It is not permitted to take the power supply directly from the vehicle battery terminals.

g) The earth wire shall be securely connected with a suitable connector to an original vehicle earth point. If there is more than one earth wire, the wires shall be connected to separate secure earth points on the vehicle chassis where the vehicle is negative chassis. It is preferable to use the earth connection points.

h) Isolated earth return vehicles must be wired with the negative feed wire(s) wired from the isolated earth return rail of the vehicle.

i) Check for good continuity between the security system earth point and the main earth connection on the vehicle battery, or the earth rail in the case of negative earth return vehicles.

j) The use of 12-volt devices is prohibited unless supplied with an external voltage converter as part of the installation equipment by the security product manufacturer. Such a converter may not be shared with other equipment.

iii. Independent Audible Warning Device

a) The main sounder must vent directly to atmosphere. A secondary sounder may be vented internally.
b) The audible warning device (siren) shall be securely mounted in the engine compartment or in a secure location.
c) Consideration should be given that access to the audible warning device and interconnection wiring cannot be gained from underneath the vehicle through the engine compartment.
d) In certain makes and models of vehicles, consideration should be given to the sound output levels and, where security dictates, consideration should be given to protecting/ armouring the sounder wiring.
e) Audible warning devices should not be sited behind the front access grill on HGV type vehicles.

NOTE: Section **iii** should be read in conjunction with Section **iv**

iv. Engine Compartment/External

a) Where components of the security system are mounted in the engine compartment or external to the vehicle they shall be located in such a position as to:

    a) Reduce the risk of external attack.
    b) Reduce exposure to road water and salt spray unless the component, including terminations, is specifically designed to operate in this environment.
    c) Reduce exposure to high temperatures unless the component is specifically designed to operate in this environment

b) Component parts shall be protected against exposure to the elements and extremes of environment encountered in the day to day use of the vehicle.
c) It is desirable that the components be positioned at least 200 mm away from exhaust manifolds, turbo chargers and catalytic converters, or installed in a position that the product is within its operating temperatures.
d) It is recommended that the components be positioned where the use of high pressure cleaning equipment cannot cause water damage or corrosion.
e) Where siting of component cannot be adequately protected from water a suitable protective shield or deflector should be fitted

v. Arming and Disarming

a) Radio remote systems: Refer to section C i. concerning the location of the receiver ECU. Ensure that the aerial is located in such a position that reception is not impaired. (Refer to manufacturer's instructions.)

b) Key-switches: Key-switches should comply with the requirements of BS6803 (Part 3) and should have greater than 100,000 useable differs.

   a) Key-switches should be fitted in bodywork (with consideration to external access for use of the key) where internal access to the wiring cannot be gained without the use of tools to remove trim or panels.
   b) Key-switches must not be fitted in areas of bodywork where access can be gained to the wiring, or be gained by the removal of external panels or light-clusters that are externally secured.
   c) Key-switches should be fitted using appropriate means to ensure that they cannot vibrate loose in the bodywork.
   d) Key-switches fitted in the load compartment of goods carrying vehicles should be protected against tamper or damage or enclosed in a suitable non-corrosive metal box. The wiring connections to the key-switch should be terminated within the enclosure.
   e) Key-switches should be fitted with a suitable cover, preferably spring-loaded, to protect against the ingress of road dirt and water.
   f) Key-switches fitted to the rear load compartment of vans and HGVs should be fitted on the nearside to comply with Health and Safety Regulations unless specially requested otherwise by the customer.
   g) Key-switches should be at all times wired with monitored wiring, where the control unit of the security system manufacturer allows for anti-tamper.
   h) Where the facility for monitored wiring to the key switches is not available, the wiring should be physically protected against attack or tamper.

vi. Vehicle Pin Switches

If the security system requires inputs from opening doors/panels the following points should be checked:

a) All doors irrespective of their opening sequences, including bonnet, should be protected by pin switches or magnetic reed-switches appropriate to the application.

b) Check that pin switches cannot be held closed, either by hand or with a suitable tool, i.e., a plastic card, when opening doors.

c) If pin switches can be held closed by any means, then either re-adjust, re-locate or protect by suitable means. If necessary replace the pin switch with a suitable magnetic reed contact.
d) Where existing vehicle pin switches are utilised, their condition should be checked.
e) Check the switching polarity of existing pin switches to ensure that they are compatible with the ECU being fitted.
f) Due consideration should be given to possible complications when using existing pin switches wired to existing courtesy light circuits.
g) The use of mercury-switches for tailgates is not permitted.
h) HGVs fitted with barn-type doors and roller-shutter doors must be fitted with suitable heavy-duty magnetic-reed contacts.

a) Where-ever possible these should be bolted in place using plated nuts, bolts and shake-proof washers or rivets suitable to the application.
b) Where it is necessary for these to be screwed down this should be done with heavy plated self-tapping screws.
c) When siting magnetic reed contacts on shutter doors, consideration should be given to eliminating damage and false alarms. Where the shutter door can be levered on one side a second magnetic switch is recommended.
d) Barn-type doors should be checked that the first opening door retains the second door.
e) If both doors can open independently, then both doors must be fitted with appropriate magnetic reed contacts.
f) Wiring to the contacts of load compartment doors of HGVs, or where the wiring is exposed, i.e. along a chassis rail, must be closed-circuit or alternatively carry a monitor loop against attack.

vii. Installation of Detectors

a) Ultrasonic detectors shall be:

a) Positioned a minimum of 300 mm from air vents in the cab area
b) Directed in line-of-sight of the furthest glazed area
c) Positioned in such a way as to afford best coverage in accordance with the security system manufacturer's instructions.
d) Not readily adjustable by the customer.
e) Not necessarily suitable for the load compartment of vans and HGVs where there are air vents and gaps over shutter-doors.

b) Cab mounted ultrasonic detectors should not be used to protect the load space in panel vans and upwards.

c) Microwave detectors shall be:

   a) Connected in such a way that they are powered in accordance with manufacturer's instructions.
   b) Mounted in such a way as to afford best coverage in accordance with the security system manufacturer's instructions.
   c) Adjusted for sensitivity in such a way that their field of coverage does not extend beyond the confines of the vehicle cab unless used with a Dual Tec system.
   d) Not readily adjustable by the customer.

d) Dual Tec detector heads suitable for load compartments
Dual Tec detector heads shall be:

   a) Sized so that the scan of the detector is in accordance with the length and load volume of the load compartment.
   b) Mounted in such a way that the actual load will not interfere with the scan of the detector.
   c) Mounted in such a way as to afford best coverage in accordance with the security system manufacturer's instructions.
   d) Connected in such a way that they are in accordance with the security system manufacturer's instructions.
   e) Not readily adjustable by the customer.

e) Other suitable detectors
Detectors not covered by the above shall be installed according to the security system manufacturer's instructions.

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E TESTING PROCEDURES

i. Alarm System Functional Test

a) Prior to conducting the testing procedures ensure that the vehicle battery is adequately charged and connected.

b) Check that other vehicle electrical systems and warning lights are operational.

c) Check security system operation according to the security system manufacturer's instructions and:

- a) Set security system and check that all audible/visible indications function correctly.
- b) Activate alarm condition and check that all audible/visible warning systems operate according the manufacturer's specification.
- c) Check that the engine will not start and the vehicle is immobilised.
- d) Check that each protected zone is working correctly, i.e. cab and load area.
- e) Check the operation of systems wired with rear door ignition alarm.
- f) On self-powered systems disconnect the main positive feed to the system to ensure the system operates correctly from its own stand-by battery
- g) Check the operation of panic button where fitted.
- h) Check correct operation of all key switches or remote control devices fitted.
- i) Check individual operation of magnetic reed contacts on loading doors.

d) On multi-circuit immobilisation devices check that each circuit is operating correctly.

- a) Disarm security system and check that all audible/visible indicators function correctly.
- b) Check that engine starts.
- c) Check correct operation of passive setting.
- d) Check operation of remote central locking, window total closure, panic function and other peripheral functions
- e) Ensure that immobilisation cannot be accidentally activated whilst engine is running.

ii. Detector Functional Tests

a) Ultrasonic detectors

a) Open one side window between 20mm and 30mm. Set security system/detector to stabilise
b) Set security system.
c) Using appropriate tool, adjust sensitivity level upward to minimum required to detect a person steadily reaching an arm through the window to the centre of the passenger compartment.
d) Check alarm condition occurs.
e) Check ultrasonic detector heads are securely fixed in position.
f) Repeat test if necessary within all other areas covered by detector.
g) Seal sensitivity adjustment in accordance with manufacturer's instructions.

b) Microwave detectors

a) Open both side windows between 20mm and 30mm.
b) Set security system and allow system/detector to stabilise.
c) With reference to manufacturer's information regarding the field of coverage, adjust sensitivity level upward to the minimum required to detect a person steadily reaching an arm into this field area.
d) Check alarm condition occurs.
e) Repeat test for all areas within the required field of coverage.
f) Check alarm condition does not occur due to movement beyond the confines of the vehicle.
g) Seal sensitivity adjustment in accordance with manufacturer's instructions.

c) Dual Tec detector heads

Dual Tec detector heads should be tested in accordance with the manufacturer's instructions.

d) Other detectors

Detectors not covered by these procedures shall be tested according to the security system manufacturer's instructions.

iii. Perimeter Detection (Pin Switches)

a) Set security system.

a) If pin switch is located on the hinge side of the door, open no more than 100 mm at door edge. Check alarm condition occurs.

b) If located on the opening side of the door, open no more than 50 mm at door edge. Check alarm condition occurs.

c) If alarm condition does not occur, adjust pin switches and repeat a) to c).

d) Repeat test on all doors and bonnet.

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F. DEMOUNTS AND TRAILERS

a) Consideration should be given for the necessary supply voltage to maintain charge condition of alarm equipment where the equipment is mounted in the body and fitted for free standing protection.

b) Plugs and wiring for interconnection of alarm and charging supplies to be of suitable commercial vehicle type and quality.

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G. IMMOBILISATION

i. Air Brake Locks.

a) Only air brake valves accepted by the Department of Transport must be fitted.
b) Fittings for the air pipes must be sized in accordance with existing pipe size fitted by the vehicle manufacturer.
c) All fittings should be compression type, i.e., tube nut/olive.
d) All extension piping for the fitting of the valve should be in standard braking system nylon pipe as specified by the vehicle manufacturer.
e) All compression fittings should be fitted to the accepted vehicle industry standards for these types of fittings.
f) The use of push-in type connectors is not permitted unless specified by the vehicle manufacturer.
g) Valves should be mounted on a firm, rigid surface and not mounted on soft plastic dashboard or other mounting areas.
h) Accessibility to piping and fittings must be considered for security purposes.
i) Accessibility should not be gained without the removal of trims and panels using tools.
j) Manually operated air brake valves should be fitted in a covert position where possible.
k) Valves should be mounted to exclude the ingress of dirt and dust into the key barrel.
l) Automatic air brake valves must be fitted in a secure and covert position using plated nuts, bolts, etc., or suitable heavy duty plated self-tapping screws.
m) All wiring to automatic air brake valves to be fitted in accordance with the requirements of fitting security systems. (Section C)
n) Care should be exercised when replacing dash and other panels that the nylon brake pipes are not trapped or kinked.
o) The vehicle braking system must be tested for correct operation after completion of the installation.
p) Vehicle operator to be made aware that he must complete form VG10 (Notifiable Alteration to Braking System) and return to Department of Transport at Swansea.

NOTE: The use of PTFE tape on air brake systems is <u>not</u> allowed. Use liquid thread sealers only. Refer to manufacturers' instructions.

ii. Fuel Valves

a) Fuel valves must be sized to suit engine so as not to affect full engine performance.

b) Fuel valves should be securely mounted, using appropriate bracket, to a suitable place on the engine or chassis rail in an upright position and should not be visible with cab down.

c) Fuel valves should be connected:

   a) With correct size of suitable fittings and piping to suit the existing fuel lines fitted by the vehicle manufacturer.

   b) Fittings should be of compression type (i.e., tube nuts and olives).

   c) All compression fittings should be fitted to the accepted vehicle manufacturer's standards for these types of fittings.

   d) All extension pipes to and from the fuel valve should be appropriate nylon pipe or equivalent piping as used by the engine manufacturer.

   e) Fittings screwed into valve bodies, injector pumps and filters, etc., should be fitted using PTFE tape or a suitable engineering thread sealant where appropriate.

   f) Where 'fir-tree' type connectors are used they should suitable for the application and the piping shrunk on as per the manufacturer's instructions.

d) Extra consideration should be given to the position of the fuel valve for security reasons.

e) Fittings and piping should make it difficult to bypass the valve.

f) The use of push-in fittings for fuel valve installations is not permitted.

g) The use of re-enforced plastic pipe with jubilee clips is not permitted.

h) All associated wiring to fuel valves to be fitted in accordance with the fitting of security systems (Section C)

iii. Hydraulic Cab Lock (Mechanical)

a) The lock should be fitted in the protected area, internally within the cab or in a locked accessible area which is secured.

b) The valve should be suitable for the application and the high pressure involved.

c) All interconnecting piping together with swaged fittings must be suitable for high-pressure hydraulics.

d) The valve should preferably be mounted in such a way that it is not possible to obtain access to the connectors when the cab is in the locked down position.

iv. Air Operated Security Devices (Applicable to Air Braked HGVs)

a) Any air operated security device must be connected to receive air pressure from auxiliary line 4 of the original equipment manufacturer's pressure protection valve fitted to the vehicle.

b) All fittings and pipes must comply with the necessary standards for air braked vehicles as laid down by the original equipment manufacturers and the Department of Transport.

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H INSTALLATION OF PHYSICAL SECURITY

i. Rear Window Protection (Vans)

G 4

a) Window plates and grills should be of 18G galvanised steel or appropriately protected against corrosion and riveted in position every 100mm with a minimum size of 5mm blind rivet.
b) On high-risk vehicles, consideration should be given to stitch welding to existing bodywork.
c) Where window bars are fitted they must be protected against corrosion and spaced so as to stop the size of load carried being pulled through the aperture created by the spacing of the bars.

ii. Bulkheads (Vans)

a) Aftermarket fitted bulkheads should be of either sheet steel or steel mesh designed specifically for the make and model of vehicle.
b) It is recommended that wooden bulkheads be constructed using plywood or M.D.F. sheet no less than 12.5mm thick.
c) Due consideration should be given to the fixing points and method of fixing bulkheads so that their strength is suitable for the type of bulkhead being fitted.

iii. Supplementary Locks

a) Where supplementary locks are to be fitted, particularly mortice locks, due consideration must be given to the structural integrity of the vehicle PRIOR to cutting into the bodywork.
b) Additional care must be exercised that the locks do not foul or obstruct existing vehicle components.
c) Any holes or slots cut into the vehicle metal work should be de-burred and treated with an anti corrosion treatment.
d) Customers must be made aware of any necessary maintenance measure that should be carried out in order to comply with standard warranty conditions.

iv. Deadlocks

a) The lock case or body must be securely attached to the bodywork in strict accordance with the lock manufacture's specification.
b) The receiver or striking plate must be of adequate size and material (including fixings) so as not to bend or give when subjected to a minimum acceptable sheer stress or reasonable force. Reasonable force can be defined as requiring the Original Equipment Manufacturer's doors to deform prior to any part of the supplementary lock mechanism failing.

c) When fitting the receiving bracket or plate, adequate minimum clearance must be allowed between the bolt or latch and the receiving bracket to allow for vehicle body twist and to avoid strain on the lock whilst the vehicle is being driven.

v. Padlocks, Hasps and Staples

a) Hasps and staples should, where materials allow, be welded to the vehicle structure. However, where this is impracticable the use of 8mm coach bolts is permitted, provided any fitments accessible from outside the vehicle are either welded or deformed to such a degree that removal by conventional means is impossible.

b) Where spacers are required due to the structural shape of an aluminium shutter these should be manufactured from either solid metal block or plate.

c) When fitting hasp and staples to van/shutter doors, an inner steel re-enforcing plate of 1mm thickness (minimum) and at least the same dimensions of the outer fitment must be used to prevent the fitment being torn out of the panel/door using a crowbar.

d) Padlocks supplied for use with hasp and staples must be of suitable design and strength and comply with the requirements of the customer's insurance company.

vi. High Security Slam Locks

a) Slam lock kits to be fitted should achieve the following enhancements to the existing door lock facility.

   a) The slam lock release should be achieved by a high-security key with no less than 100,000 useable differs.

   b) The slam lock conversion should include additional metal work (brackets/plates, etc.) to physically strengthen the vehicle bodywork in order to prevent locks being overcome by the door skin being ruptured.

   c) The slam lock key barrel should be fitted in a manner that makes it secure against attack where the objective would be to turn the key barrel in the door skin in order to overcome the locking mechanism.

   d) All additional metal work to be fitted as a slam lock conversion should be manufactured from non-corrosive material or plated to protect against corrosion.

b) When fitting slam lock conversions, thought must be given to exit routes from the vehicle assuming personnel could be locked in.

vii. Shoot Bolts

a) Should additional shoot bolts be introduced to further enhance security, consideration should be given to future adjustments assuming wear and tear on door seals, hinges, etc.

b) Shoot bolts should ideally be installed into the door skin box for added strength.

c) Location holes for shoot bolts should, where necessary, be reinforced with additional plates.

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I TRACKING

a) This Code of Practice covers the general aspects of fitting tracking devices currently available. See Section C. More specific

information will be found in the MESF Code of Practice for Cars and Light Vans.

b) Due to the covert nature of this type of installation, the equipment manufacturer's instructions for the location of the unit and antenna should be adhered to.

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J FINAL INSPECTION

i. Check List

a) All items and trim removed have been re-installed correctly.
b) All swarf and debris has been removed from the vehicle.
c) All vehicle systems are fully operational.
d) All security system documentation is complete.
e) All audio codes are reset.
f) Sensitive documentation is securely stored with access limited to authorised personnel.
g) Seat and wing covers are removed from the vehicle.
h) If window stickers are to be fitted, they shall not state the model number or designation of the security system.
i) All visible security system codes are removed.
j) Cab is fully down and secure on tilt vehicles.

ii. Handback Procedure

a) No technical information, documentation or drawing related to the security system shall be communicated to any unauthorised person if this could lead to a breach of the security afforded by the system.
b) Demonstrate all functions of system and advise on the prevention of false alarms.
c) Hand to the customer or authorised person (using established company procedure)

    a) User instructions.
    b) Helpline telephone number where applicable.
    c) Security system keys.
    d) Spare keys.

d) Ensure that the customer promptly receives the following via post or with invoice:

    a) Certificate of installation.
    b) Warranty document.
    c) Service/inspection recommendations.

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APPENDIX 1

RECOMMENDED EQUIPMENT FOR INSTALLATION ENGINEERS

The following tools and consumable are the minimum requirements for installers of security systems to vans and HGVs.

Suitable soldering iron.
Suitable flux cored solder.
Insulation tape.
Amalgamating tape.
Socket sets.
Heat gun.
Selection of adhesive lined heat shrink insulation.
Electric hand drill.
Wire stripper.
Side cutters.
Crimps and appropriate ratchet crimping tools.
Set of flat blade screwdrivers.
Set of Phillips screwdrivers.
Torx set.
Allen keys.
Metric spanner set.
Appropriate hole-cutting tools.
Trim removing tools.
Blind pop-rivet gun - 2 sizes.
Stanley knife.
24V and 12V test lamp.
Suitable multimeter.
Pull through cord.
High speed drills.
Vacuum cleaner.
Inspection light.
Small extension ladder.
Generator for power tools.
Silicone sealer with application gun.
Ruler.
Files.
Compression kits.
Protective clothing and gloves.
Hacksaw.
Selection of nuts, bolts, coach bolts, rivets, screws, washers, cable clips, cable ties, cables (insulated), multi-core cables (insulated), insulated and non-insulated crimps, grommets, armouring, paints, primer, wood drills, wood hole cutting drills, key switch cleaner, junction boxes, tape and loom tapes, fuses/circuit breakers, fuse holders, piping and fixings, PTFE tape.

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