



**RCAR**

**Research Council for Automobile Repairs**

**CAR SECURITY**

**DESIGN GUIDE & EVALUATION SYSTEM**

**August 2008**

## **INTRODUCTION**

There are many factors, which can contribute to the likelihood of a car being stolen. These include desirability, performance, cost of spare parts and exposure in the marketplace. The factor which can often play the major role in car theft is the level of security of the car itself.

### **Points Rating System**

This method of evaluating and rating motor vehicles for ease of entry and theft offers a way of comparing cars for either publicity or insurance rating purposes.

The subjective rating system is 120 point vehicle rating system. The system is not intended to be exhaustive and if necessary, the weighting of the various scoring categories can be varied to suit market requirements.

It is also important to note that a 120 point score does not make a car 'theft proof' but only indicates that the car's security is better than its competitors. Indeed, as technology changes there may be scope for revising the system to allow for new developments.

If used correctly this system can and has been a useful tool in encouraging car manufacturers to improve the design of their cars to more actively resist theft, although regard must be had to relevant safety, design and product liability laws in each particular country.

While the system is intended to be as objective as possible, there will always be a small element of subjectivity which may lead to different scores being awarded in different situations. The examples listed in this booklet are intended as a guide only as there may be many designs which offer similar security to those examples listed and they should be scored accordingly.

Any new technology, device or design not allowed for here should be assessed on its effectiveness relative to the examples given and points awarded accordingly.

Another point to note is that if any part of the car design reduces the effectiveness of for example, the steering lock (eg. if a steering lock pin fails easily), then points should be deducted from the steering lock score. If a subcategory has a zero score then the whole category will score a zero, in particular the Entry category.

# New Vehicle Theft Resistance Score Sheet - 2008

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Equipment: \_\_\_\_\_  
 Body: \_\_\_\_\_ Rego: \_\_\_\_\_ Build Date: \_\_\_\_\_ / \_\_\_\_\_ Compliance Date: \_\_\_\_\_ / \_\_\_\_\_  
 Assessment Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Assessed By: \_\_\_\_\_ Photos: YES / NO No. of keys \_\_\_\_\_

## “ENTRY”

Tick appropriate Box

### Entry – Total 100 (Weighting 0.10) (Max 100)

Weighted Score

#### Lock support in Door (Max 40)

Half points if lock set is not high quality

Very Good, No Passenger Door Lock  (30)  (10)  
 Good  (20)  
 Fair  (10)  
 Poor  (0)

#### Lock Shielding (Max 30)

Electronic locks/Freewheeling Tumbler. No Linkage  (30)  
 Well Shielded  (20)  
 Reasonable Shielding  (15)  
 Little Shielding or Linkage Locks when Key removed  (5)  
 Poor  (0)

#### Inner Release Type (Max 30)

Add 10 points if laminated double glass or passive deadlocking

Passive Deadlocking or Remote Deadlocking  (20)  (15)  
 Laminated/Double Glass  (10)  
 Button Access (Awkward/Difficult)  (5)  (10)  
 Button Access Easy or Active Boot Release  (0)

### ALARM – TOTAL 100 (Weighting 0.10) (Max 100)

Satellite Tracking with Back-to Base Monitoring and immobiliser  (100) or  
 Backup Battery Siren  (40)  
 Internal Movement – Mandatory for convertibles  (30)  
 Shock Sensor  (30)  
 Glass Breakage Sensor  (30)  
 Jack Inclination Sensor  (30)  
 Doors, Hood and Trunk  (10)  
 None Fitted  (0)  
 Security Labels

### MISCELLANEOUS – TOTAL 100 (Weighting 0.05) (Max -100)

Alloy Wheels  Fixed Rear Seat (Sedan only)  \_\_\_\_\_  
 Locking fuel cap

Alloy Wheels - No Locking Nuts  (-30)  
 Split Fold Rear Seat - Not lockable (Sedans only)  (-30)  
 Trunk/Hatch - Has Key Cylinder  (-30)  
 Spare Wheel – No Lock Provided (4WDs only)  (-10)  
 \*(All vehicles start with 100 points - points are deducted)

### STEREO – TOTAL 100 (Weighting 0.05) (Max 100)

Brand \_\_\_\_\_

Model \_\_\_\_\_

Size \_\_\_\_\_

Integrated with Security System or CAN   
 Split Display   
 Dash Integrated   
 Security PIN  No of Digits \_\_\_\_\_  
 Warning Light   
 Window Labels   
 Removable Face   
 Not Security Coded  (0)

“THEFT RESISTANCE”

**IMMOBILISER – TOTAL 100 (Weighting 0.60)**

- Challenge Response protocol integrated into CAN System and more than 4 dependant components  (100)
- Challenge Response protocol  (85)
- Encrypted CAN System  (75)
- Encrypted/Rolling Code  (65)
- Read Write/Read Only  (40)
- Non-Factory Integrated  (20)
- Gear Lever Lock with Digital Interface to Security  (15)
- No Immobiliser  (0)

“VEHICLE IDENTIFICATION”

**VEHICLE IDENTIFICATION – TOTAL 100 (Weighting 0.30)**

- Microdots WOVN and on Compliance and VIN Plates  (100)
- Microdots (covering underfloor & sel components) and on Compliance and VIN Plates  (95)
- Microdots (covering underfloor components) and on Compliance and VIN Plates  (90)
- Compliance/VIN Decal with High Security  (40)
- Compliance/VIN Decal with Medium Security  (30)
- Compliance/VIN Decal with Minimum Security  (10)
- Second VIN Stamping/Engraving  (10)
- Compliance/VIN Decal with No Security  (5)
- Non-acceptable identification method  (0)
- Label location penalty  (- \_\_\_\_)

**COMPONENT EXCHANGE**

If component exchange (key, engine management and immobiliser decoder) can be done < 5 min in a public area and allow the vehicle to be driven 50% of awarded points will be deducted.

**IF ASSESSED - IGNITION – TOTAL 100 (Weighting 0.35)**

**Tool Access (Max 50)**

Add 10 points if ignition lock has hardened front plate

- Difficult  (40)  (10)
- Fair  (25)
- Easy  (0)

**Tool/Impact Resistance (Max 50)**

- Excellent  (50)
- Very Good  (35)
- Good  (20)
- Fair  (10)
- Poor  (0)

Total \_\_\_\_\_ 120

**IMMOBILISER FUNCTIONS TEST**

Isolate immobiliser antenna

Number of engine starts if any \_\_\_\_\_

Gear lever lock digital / mechanical

Isolates Starter Y/N

Isolates Spark Y/N

Isolates Injectors Y/N

Isolates Fuel pump Y/N

Anti- carjacking Y/N

Anti-carjacking – record process to effect engine stop and the time taken A

B

C

D

E

## **1. ENTRY - TOTAL 100 POINTS**

***Weighting 0.10***

Ease of entry to vehicle plays an important part in determining the ease of theft. The more time spent outside the car and the more noise generated, greatly increases the risk to the thief.

### **MINIMUM RECOMMENDED STANDARD**

All entry points of vehicles (doors, boot/hatch) to meet the following standards:

#### **i. General Demands**

The lock unit should be so designed, fixed and covered that the lock function cannot be removed in shorter time than 2 minutes by using the tools specified in Appendix A. This includes punching the lock cylinder in, extracting the lock cylinder or twisting the lock cylinder.

#### **ii. Key Variations**

The lock cylinder or other decoding unit shall be provided with at least 2000 combinations in any key profile or series.

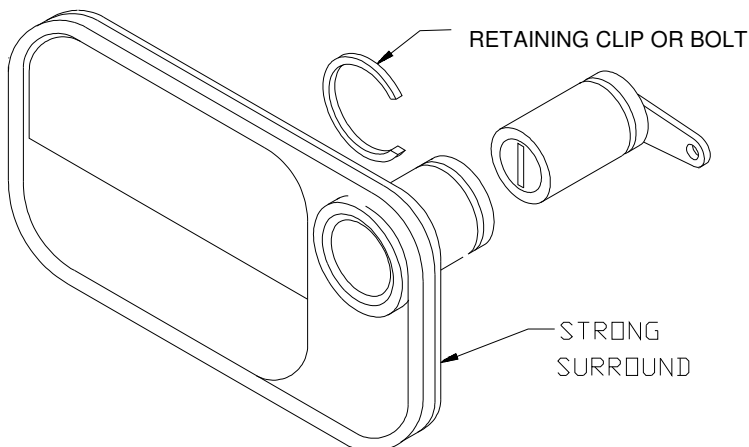
### **1.1. LOCK SUPPORT IN DOOR (Max. 40 points)**

This section evaluates how well the door lock is supported in the door, including the method of mounting and the materials used.

Bonus 10 points may be allocated for the removal of the passenger side key cylinder.

### **30 POINTS**

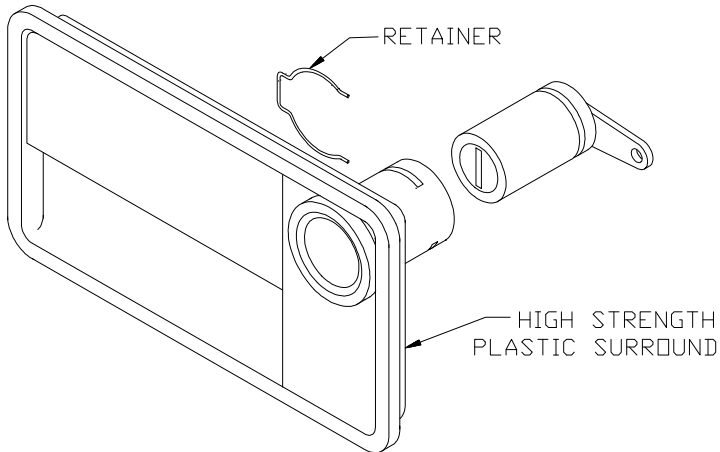
- Features:
- Strong, well designed handle (preferably metal)
  - Door lock mounted in handle assembly
  - Door lock securely retained



**1.1 (Cont)**

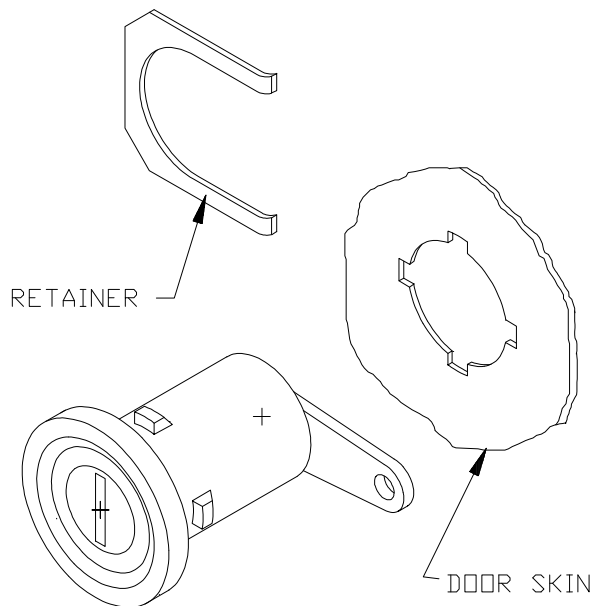
**20 POINTS**

- Features:
- High strength plastic handle
  - Door lock mounted in handle assembly
  - Door lock securely retained



**10 POINTS**

- Features:
- Door lock mounted in door skin
  - Door lock well located
  - Strong retainer used



**BONUS 10 POINTS**

- Features:
- No passenger door key cylinder

**NOTE: If the lockset is not of high quality half points will be awarded.**

**1.2 LOCK SHIELDING (Max. 30 points)**

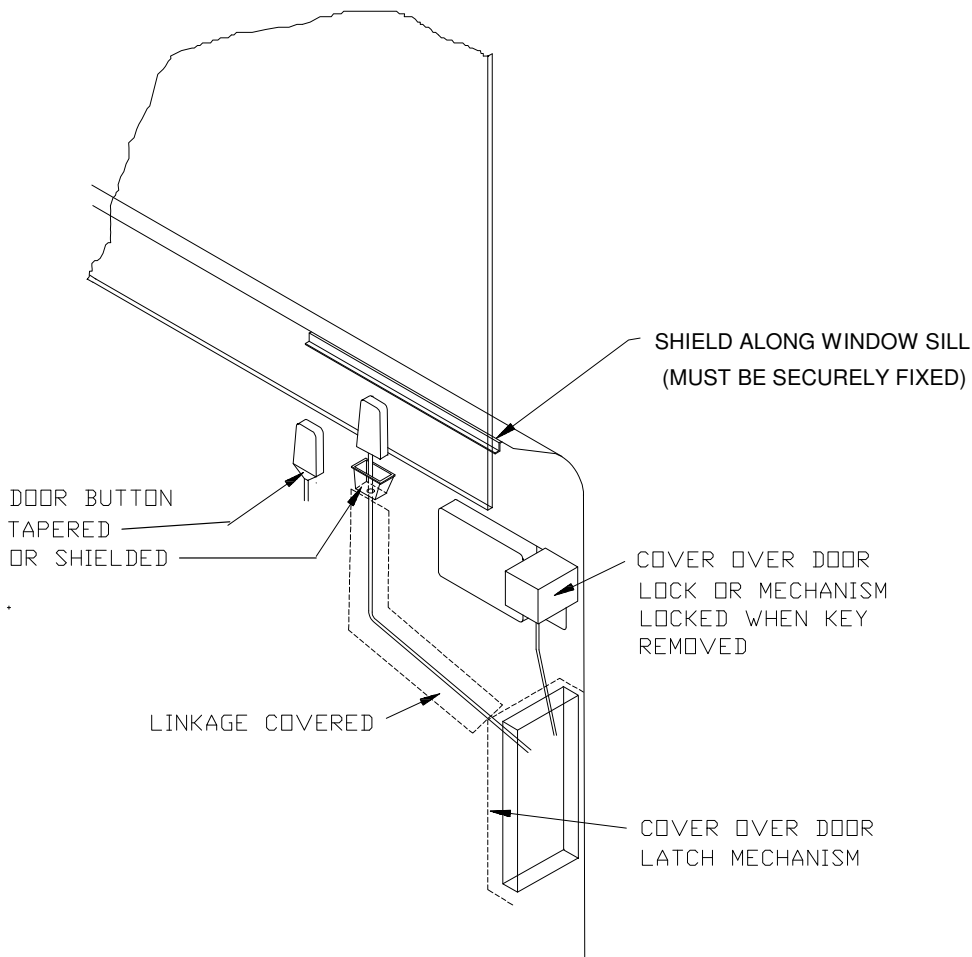
This score evaluates how well the door lock mechanism is protected from foreign objects such as a piece of wire or a thin strip of steel being inserted between the door and the window glass.

**30 POINTS**

- Features:
- Free wheeling tumbler
  - Electronic locks
  - No easily manipulated linkages

**20 POINTS**

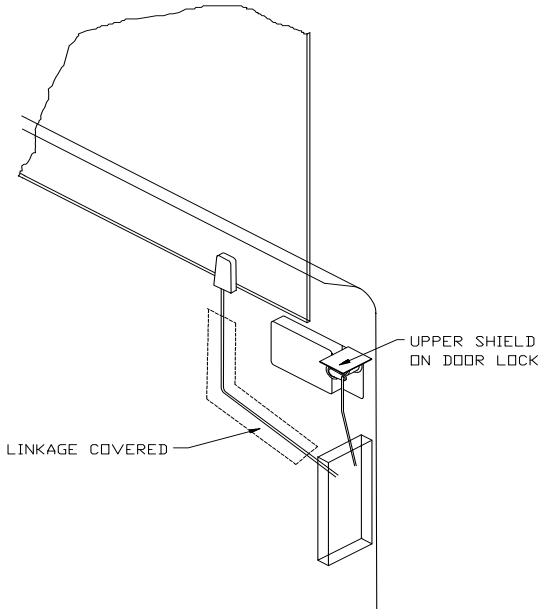
- Features:
- Door lock fully shielded
  - Door latch mechanism fully shielded
  - Door linkage including door lock release fully protected
  - Window clearance at seal makes insertion of tools difficult



**1.2 (Cont)**

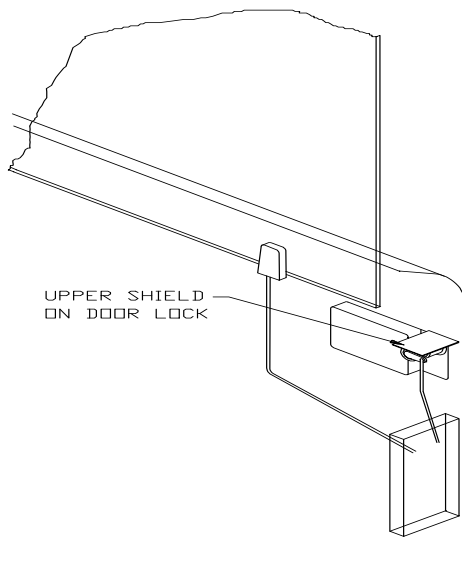
**15 POINTS**

- Features:
- Door lock partly shielded
  - Door latch mechanism unshielded
  - Door linkage fully protected



**5 POINTS**

- Features:
- Door lock partly shielded
- When the key is removed from the door lock cylinder, the mechanism is locked preventing movement of the linkage between the door lock and the door catch



**0 POINTS**

- Door lock unshielded
- Door latch mechanism unshielded
- Door linkage unprotected



**1.3 DOOR LOCK INNER RELEASE TYPE (Max. 30 Points)**

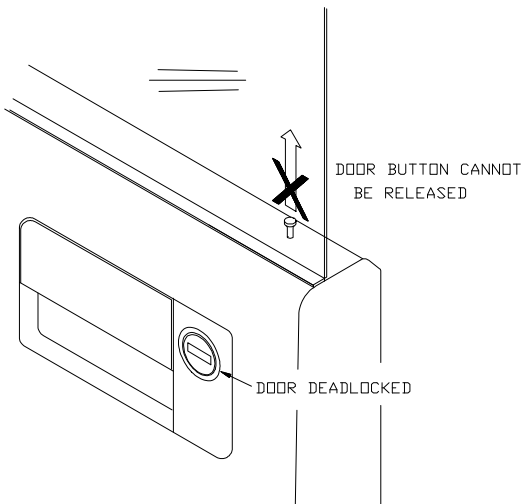
This relates to the type of door lock release and the degree of difficulty of releasing the lock from outside the car using for example, a piece of wire or plastic packing tape. All door locks fixed by radio remote or key from outside the car.

Note: 0 points awarded in this section if tailgate or trunk release lever is easily accessed from outside the car using wire or plastic tape where this gives easy access to the car interior.

**A bonus of 10 points may be allocated if the vehicle has laminated/double thickness side glass.**

**20 POINTS**

Features: Passive deadlocking, door release cannot be activated without key door mechanism being fully protected under section 1.2



**15 POINTS**

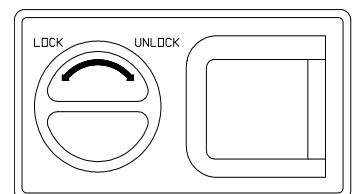
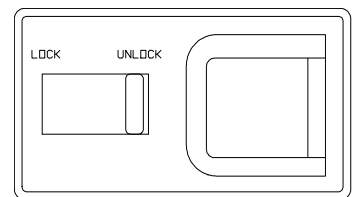
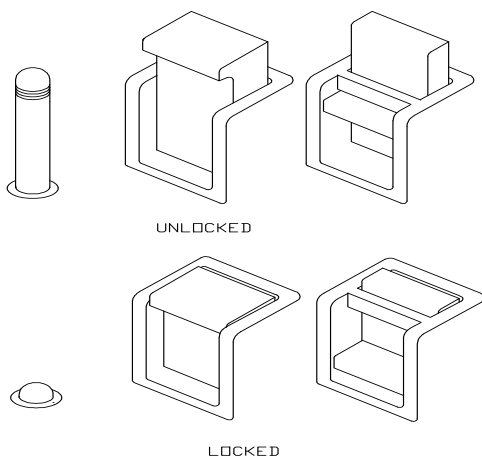
Features: Remote deadlocking

**5-10 POINTS**

Features: Door release cannot be activated without key  
 Door mechanism fully protected under Section 1.2  
 Door lock release buttons difficult to manipulate from outside vehicle  
 Door lock release buttons flush with panel when locked

5 Point features: Door lock release with door handle either rotary or slide release style

10 Point features: All operating surfaces of lock release to have rounded edges



**1.3 (Cont.)**

**0 POINTS**

Features:

Door lock release buttons with flanges

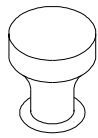
Door lock release buttons easy to manipulate from outside vehicle

Trunk or tailgate easy to operate from outside using tape or wire

Active electric door/hatch release



UNLOCKED



LOCKED

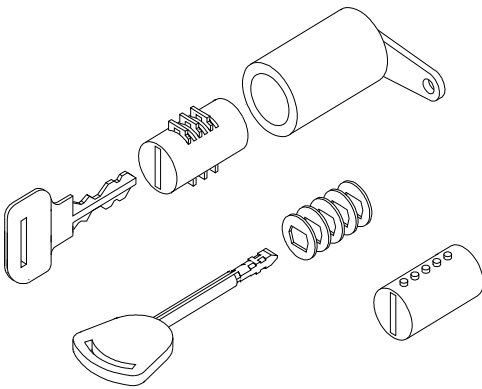
#### **1.4 DOOR LOCK SET**

This section is now accounted for in Section 1.1. The score in this section is basically determined by the type of locking cylinder used and relates to the locks resistance to manipulation or "picking". Naturally, the more complex the lock type the less likely this form of theft becomes. They should in principle conform to the key variation requirement (section iii) of the minimum recommended standard. The lock must use quality materials and not allow excessive movement or promote excessive wear of components. Locks which are not considered to meet this requirement will have their point score reduced to the design deemed equivalent.

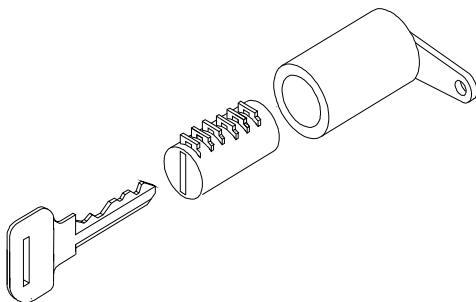
This score recognises the resistance of the door lock to manipulation and is directly related to the number of locking elements.

Note: The lock cylinder must be securely located in the housing or handle according to section 1.1. and 5 element wafer or 4 pin tumbler can be either 3 or 0 points depending on quality of construction.

- Features:
- Double acting wafer tumbler of 6 or more elements
  - Rotary tumbler of 5 or more elements
  - Pin tumbler of 5 or more elements

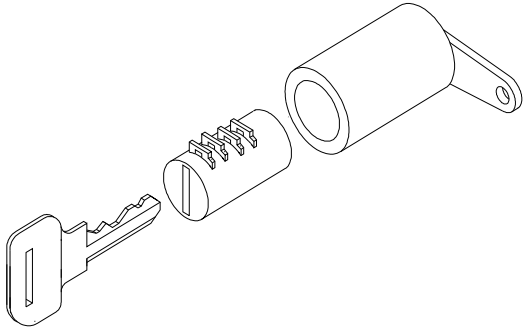


- Features:
- Single acting wafer tumbler of 6 or more elements
  - Pin tumbler of at least 4 elements



**0 POINTS**

Features: Single acting wafer tumbler less than 5 elements



## **2. IGNITION - TOTAL 100 POINTS**

***Weighting of 0.30***

The quality and strength of the ignition lock determines the ease with which the car can be started and driven away. As with entry to the car, the more time required the more risk there is to the thief of being caught.

NOTE: This category will only apply if the immobiliser is key dependent or non-existent immobiliser.

### **MINIMUM RECOMMENDED STANDARD**

#### **i. General**

The lock unit should be so constructed, fixed and covered that the lock function cannot be removed in shorter time than 5 minutes by using the tools specified in Appendix A. This includes punching the lock cylinder in, extracting the lock cylinder or twisting the lock cylinder.

The lock mechanism should automatically engage as the key (or equivalent) is removed and should conform to one of the following performance standards.

##### **a) *Locking Performance***

The steering column lock pin shall withstand a twisting moment (torque) of 400 Nm minimum and a shearing force of 1000N without failure.

##### **b) *Moment Limiting Performance***

A lock design that has a moment (torque) limiting function shall withstand a twisting moment (torque) of 100Nm minimum. The locking mechanism should return to the lock position after the moment (torque) has been removed.

##### **c) *Releasing Performance***

A lock that releases steering function and cannot be affected by twisting or bending moments (torque).

#### **ii. Lock Cylinder Performance**

When a twisting device is inserted in the keyway (eg. screwdriver, blade, scissors), the lock must withstand a twisting moment (torque) of at least 100Nm without failure. Side bar locks are recommended.

The lock cylinder shall withstand an axial impact of 20J repeated a minimum of 20 times without failure. Failure occurs when the cylinder disengages from the lock body or allows access to the steering lock mechanism. Non functioning of the lock cylinder is permissible at the completion of the impact test.

#### **iii. Key Variations**

The lock cylinder or other decoding unit shall be provided with at least 10,000 different combinations in any key profile or series.

#### **iv. Lock Installation**

The locking device shall be mounted on the vehicle as an item of original equipment (ie. equipment installed by the vehicle manufacturer prior to first retail sale). It shall be fitted in such a way that even after removal of its housing it cannot, when in the locked condition, be dismantled otherwise than with special tools. If it would be possible to render the protective device ineffective by the removal of screws, the screws shall, unless they are non-removable screws, be covered by parts of the locked protective device. Where non-removable screws are used, the installing torque to be greater than 30Nm and removal torque to be a continuous 5Nm minimum. The locking device must be designed such that removal of simple covers will not expose inner workings so that the locking system can be overcome.

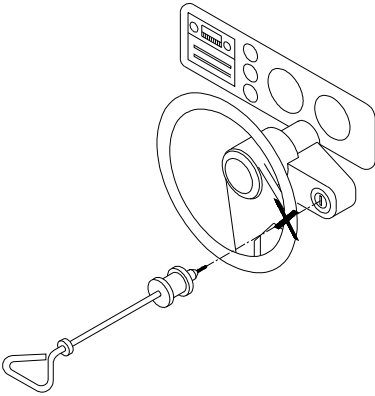
**2.1 TOOL ACCESS (Max. 50 points)**

The most common tool used in car theft is the "slide hammer" (see diagram below). This tool is used to extract the ignition lock cylinder from its housing. If access to the ignition lock is restricted by the steering wheel or other part of the steering column of the car, then the use of this or other special tools can be made much more difficult. This section should also be used to evaluate general tool access which has the potential to overcome the lock mechanism, eg by removal of the steering column covers or breaking the lock by the use of a pipe or other tool.

This area should be judged relatively.

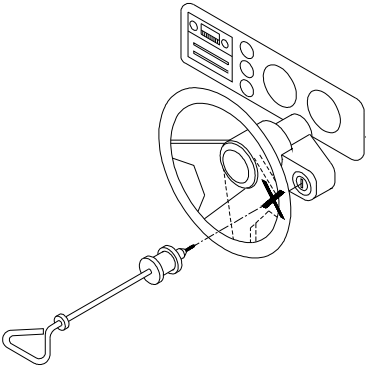
**40 POINTS**

Features: Axis of steering lock intersects steering wheel or is blocked by other components



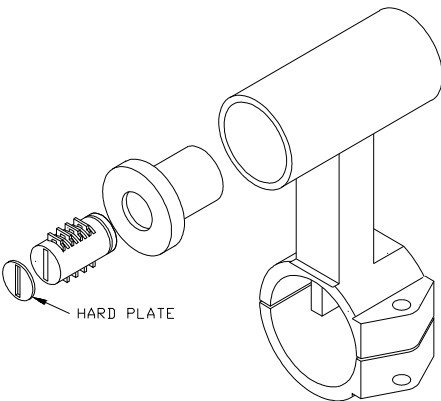
**25 POINTS**

Features: Axis of ignition lock only partly blocked by steering wheel or only when wheel locked in a certain position



**BONUS 10 POINTS**

Features: Hard plate with a minimum thickness of 1.5 mm at front of ignition lock inhibits insertion of tools



**2.2 TOOL/IMPACT RESISTANCE (Max. 50 Points)**

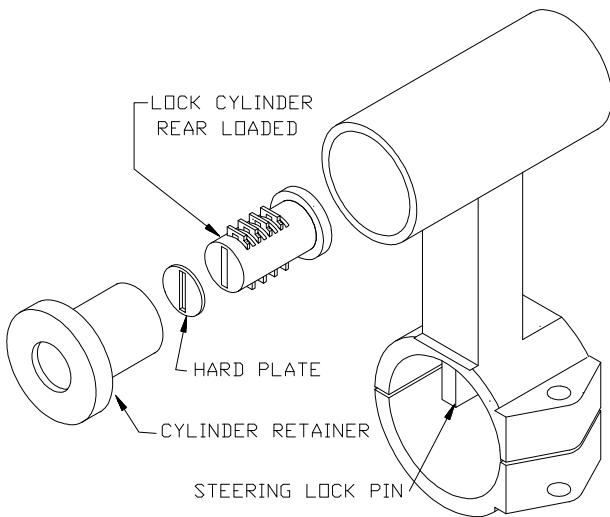
In this section the strength of the ignition lock is evaluated in terms of its resistance to attack with common car theft tools. This is usually evident by the type of lock construction used.

Particular attention is paid here to slide hammer resistance but other tools such as drills and screwdrivers should also be considered. Also, the steering lock pin (see drawing below) construction and location should also be evaluated and points be deducted if necessary. The examples used below are intended to show designs that are currently in the marketplace and should be used as a guide only.

Note: This category will only apply if the immobiliser is key dependent or non-existent.

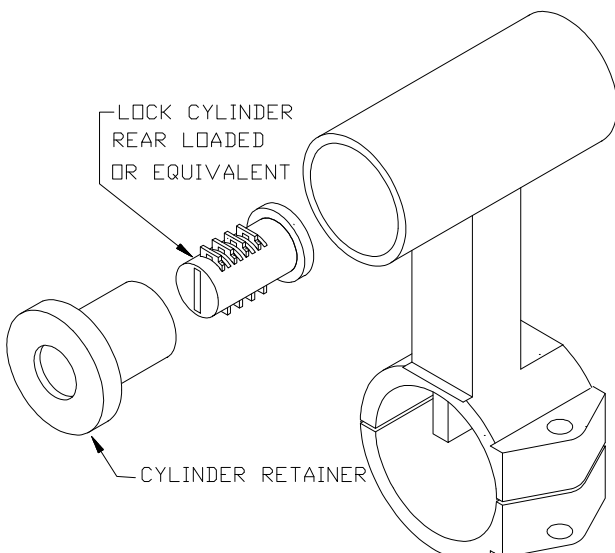
**50 POINTS**

- Features:
- Rear loaded cylinder with flange
  - Hard front plate (recommend 50Rc minimum)
  - Cylinder retainer well secured eg 4 pins
  - Side bar mechanism preferred



**35 POINTS**

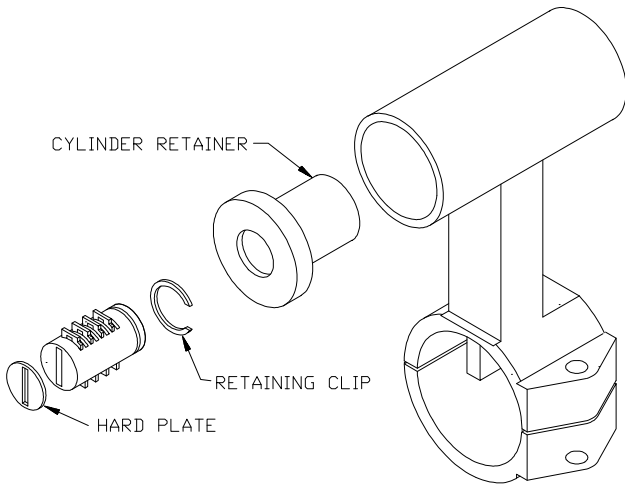
- Features:
- Rear loaded cylinder with flange
  - Cylinder retainer reasonably well secured eg. 2 pins



**2.2 (Cont.)**

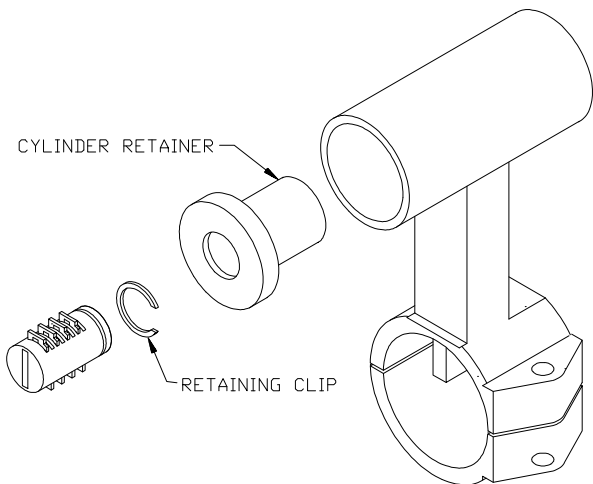
**20 POINTS**

- Features:
- Front loaded cylinder retained by deep groove circlip
  - Cylinder retainer secured only by spring loaded pin
  - Cylinder has fracture points built-in
  - Hardened plate



**10 POINTS**

- Features:
- Front loaded cylinder retained by deep groove circlip
  - Cylinder retainer secured only by spring loaded pin
  - Cylinder has fracture points built-in

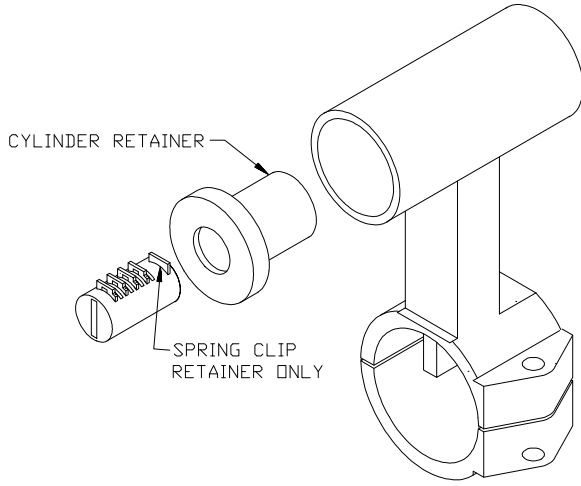




**2.2 (Cont.)**

**0 POINTS**

Features: Front loaded cylinder retained by only by spring clip  
Cylinder retainer secured only by spring loaded pin



### **3. IMMOBILISERS - TOTAL 100 POINTS**

***Weighting 0.6***

This section includes engine-disabling systems otherwise known as "engine immobilisers" fitted as original equipment. Design of the immobiliser must conform to the Australian Design Rule (ADR) 82/00. Note that where a remote activation or deactivation device is used, the transmission signal should not be susceptible to "code-grabbers" which are able to record and transmit as 0 points will be awarded to the score if this applies. All immobilisation systems must be passive arming (ie. Automatic) and should communicate directly with the engine management system via a secure code. The immobiliser system should not be able to be overcome by rewiring or simple component substitution of 4 or less components, within a 5 minute time frame (in a public arena) and should not have an override process. Immobiliser encryption should employ at least 32 bit security.

- Note:
- To qualify for the maximum score, the system must operate by a Challenge Response protocol be integrated into the vehicle's Controller Area Network (CAN), have a VIN encoded into electronic components and offer full replacement key security, ie. a master key, kept by the owner, must be used or key addition/replacement invalidates all non-present keys.
  - Any system that operates completely independent of the ignition lock (ie. electronic key or owner identification) can be given a weighting of 0.7. In this case the ignition lock integrity is not considered and a 0.0 weighting is given to the ignition lock. No ignition lock operated "service time-out" function is allowed.
  - Where a remote activation or deactivation device is used, the transmission signal should not be susceptible to "code-grabbers" which are able to record and transmit.
  - Any system that has an override and operates without the original transponder key or enables the engine to be started by simple component exchange in less than 5 minutes in a public arena the score will be reduced by 50%.

#### **Without Ignition Lock Dependence and fully factory integrated *weighting of 0.6***

##### **100 POINTS**

Features: A Challenge Response protocol system integrated into the vehicle's CAN with a VIN electronically coded into major electronic components. Simple component substitution of 4 dependant components must not allow engine start.

##### **85 POINTS**

Features: Challenge Response protocol system between the key/decoder and decoder/engine management via a CAN or similar BUS. Substitution of 3 dependant or less components must not allow engine start.

##### **75 POINTS**

Features: Encrypted coded signal between transponder, immobiliser and engine management operating via a CAN or similar BUS. Substitution of 3 dependant or less components must not allow engine start.

##### **65 POINTS**

Features: Encrypted/Rolling code transponder communication to engine immobiliser control unit. Substitution of 2 dependant or less components must not allow engine start.

##### **40 POINTS**

Features: Read Write/Read Only proximity (Transponder) chips used for communication. Substitution of 2 dependant or less components must not allow engine start.

##### **20 POINTS**

Features: Non-factory integrated engine immobiliser, which has a minimum of 2 cut out points, all black wiring and no service override. If a service override is incorporated it must only operate for one engine start and revert back to normal passive operation.

##### **15 POINTS**

Features: Transmission locking device with digital interface to security/CAN system.

##### **0 POINTS**

Features: No immobilisation fitted or active set system.

#### **4. CAR ALARMS OR VEHICLE TRACKING SYSTEM - TOTAL 100 POINTS**

***Weighting 0.1***

If the alarm system has an engine disable function then this should be evaluated by the criteria in section 3 and points awarded accordingly.

Convertible vehicles must have a factory alarm fitted with an internal movement sensor incorporated.

#### **100 POINTS**

Vehicle alarm that is set when the vehicle is locked either with a remote or a key, operating on the opening of any of the doors, bonnet or boot and include the following:

Features:            Battery backup siren  
                          Glass breakage/shock detection or Movement within the vehicle  
                          Jack inclination

#### **70 POINTS**

Vehicle alarm that is set when the vehicle is locked either with a remote or a key, operating on the opening of any of the doors, bonnet or boot and include the following:

Features:            Glass breakage/shock detection  
                          Movement within the vehicle **or** Jack inclination

#### **40 POINTS**

Vehicle alarm that is set when the vehicle is locked either with a remote or a key, operating on the opening of any of the doors, bonnet or boot and include the following:

Features:            Glass breakage/shock detection **or**  
                          Movement within the vehicle **or** Jack inclination

#### **10 POINTS**

Vehicle alarm that is set when the vehicle is locked either with a remote or a key, operating on the opening of any of the doors, bonnet or boot.

#### **BONUS 40 POINTS**

Feature:            Backup battery siren

**OR**

#### **100 POINTS**

Features:            Satellite vehicle tracking with Back-to-Base monitoring and engine immobiliser

## **5. VEHICLE IDENTIFICATION - TOTAL 100 POINTS**

**Weighting 0.3**

Clear, accurate, secure and tamper resistant Vehicle identification is a fundamental prerequisite to reduce the illegal re-identifying/rebirthing of motor vehicles. VIN identification of the vehicle can be in the form of body stamping/engraving and or decals and or microdots. This does not exclude any other type of counterfeit resistant labelling or identification application and the system may be adjusted to cater for future technologies.

Decals must be self-voiding, break-up if removed, and may have in-built security features to prevent counterfeits or reproduction by common means. It is recommended and preferred that a decal etc be spaced more than one (1) metre from a primary VIN identifier, unless they are fitted to an adjacent body panel that is not easily removed. Identifier decals must not be adhered to any body panel that may be damaged in common collisions.

The minimum levels of security accepted in the decals are they must have a self-voiding ability (break up on removal) and a marking that cannot be easily duplicated by a common duplication means.

### **Note:**

1. It is assumed that a vehicle has at least a single stamping/engraving of the VIN/Chassis number on a major structural component of the vehicle's body and one that is not easily transferred.
2. If the vehicle has no VIN/Chassis stamping/engraving there will be a zero score attributed.
3. If the vehicle identification decals are positioned so they may be prone to replacement due to minimal impact damage or are less than one (1) metre from a primary VIN identifier i.e., body stamping, then a penalty will be applied or a zero score may be attributed.

Decal Design Features: Self-voiding (break-up on removal) VIN decal/s with the following criteria:

- No additional security feature.
- *Minimal* – Company logo featured using a scrambled printing technique.
- *Medium* - In-built security counterfeit resistant feature/s. Security feature/s must be visible under normal light and may be a textured surface finish.
- *High* - In-built high security counterfeit resistant feature/s verified using a lens device. Security feature/s must be visible under normal light.

VIN body stamping/engraving in suitable location.

Vehicle identifying technology e.g., microdots or other system incorporating the complete VIN and applied on major vehicle components and/or on compliance/build/VIN tags/decals will be evaluated in this system.

### **100 POINTS**

Features: Whole of vehicle marking including microdots on major panels and VIN/Compliance identifiers.

### **95 POINTS**

Features: Microdots applied to underfloor and selected components and VIN/Compliance identifiers.

### **90 POINTS**

Features: Microdots applied to underfloor components and VIN/Compliance identifiers.

### **40 POINTS**

Features: Self-voiding Compliance/VIN decal/s with high security features that must be visible under normal light and may have a textured surface finish. This includes VIN/Compliance tags/decals with microdots applied.

### **30 POINTS**

Features: Self-voiding Compliance/VIN decal/s with medium security features that must be visible under normal light and may have a textured surface finish.

### **10 POINTS**

Features: Self-voiding Compliance/VIN decal/s with minimal security features that must be visible under normal light.

### **10 POINTS**

Features: Second VIN/Chassis stamping.

### **5 POINTS**

Features: Self-voiding Compliance/VIN decal/s with no security features.

**0 POINTS**

Features:

Aluminium compliance plate riveted to vehicle.

## **6. MISCELLANEOUS - TOTAL 100 POINTS**

***Weighting 0.05***

Additional security features that provide enhancements to the vehicle's protection against theft and improve its integrity are evaluated in this section. Lockable split-folding rear seats allow the boot/trunk in sedans to become a secure area, as does the exclusion of the key cylinder. Locking nuts/studs for alloy wheel equipped vehicles provides protection against the wheels and tyres being stolen.

Features:            Lockable split-folding rear seats (Sedans only)  
                          Locking wheel nuts/studs for alloy wheels  
                          Secure lock down of externally stored spare wheel, lock provided (4WD/SUV)  
                          No key cylinder in trunk/hatch

All vehicles start with 100 points with a penalty applied where the feature is absent as indicated below:

### **Minus 30 POINTS (-30)**

Features:            Split-folding rear seats without locking mechanism (Sedans only)

### **Minus 30 POINTS (-30)**

Features:            Alloy wheels without locking wheel nuts/studs

### **Minus 30 POINTS (-30)**

Features:            Key cylinder in trunk/hatch

### **Minus 10 POINTS (-10)**

Features:            External spare wheels without lock provided (4WD/SUV)

## **7. STEREO SYSTEM - TOTAL 100 POINTS**

***Weighting 0.05***

### **MINIMUM RECOMMENDED STANDARD**

- i. Vehicle sound system must be attached to vehicle with mechanical attachment devices (not spring loaded clips which do not require tools for removal).
- ii. Attachment devices (screws, bolts etc) must not be readily accessible from the front of the dashboard or must require optional tools to remove.

Note:

1. If the flashing security warning light is **not** clearly identifiable from outside the vehicle deduct 10 points from the pre-weighted score. Desirable but not essential for dash integrated or split display systems.
2. If there is no window labelling deduct 10 points from the pre-weighted score.
3. If the stereo requires a security code to be set by the Dealer or Owner and the system operates without the code being entered, then the score is **zero**.

### **100 POINTS**

Factory coded radio with secure electronic link (ID or digital signature or proprietary connector) from stereo head to vehicle security system; this includes CD stacker if equipped or **dash integrated** or **split display** systems that are security coded. Flashing security warning light desirable but not essential for these systems.

### **90 POINTS**

Factory coded with unique PIN with 4 or more digits, clearly identified flashing warning light and window labelling.

### **80 POINTS**

Factory coded with unique PIN with 4 or more digits, clearly identified flashing warning light and owner fitted window labelling

### **OR**

Odd sized stereo must be of unique shape to qualify.

### **70 POINTS**

Factory coded with unique PIN with 4 or more digits, clearly identified flashing warning light and **no** window labelling.

### **60 POINTS**

Factory coded with unique PIN with 4 or more digits, with a removable face and clearly identified flashing light visible once face is removed.

### **50 POINTS**

Dealer/Owner set PIN code with 4 or more digits clearly identified flashing warning light and window labelling (code must be set before the system will operate).

### **40 POINTS**

Dealer/Owner set PIN code with 4 or more digits, clearly identified flashing warning light and owner fitted window labelling (code must be set before the system will operate).

### **30 POINTS**

Dealer/Owner set PIN code with 4 or more digits, clearly identified flashing warning light and no window labelling (code must be set before the system will operate) **OR** coded PIN with 4 or more digits, with a removable front face or a covering panel which covers the warning light or does not have a warning light.

### **20 POINTS**

Removable front face or a covering panel which covers the warning light or less than a 4 digit security code.

### **10 POINTS**

Removable front face or a covering panel.

## **APPENDIX A**

### **STANDARD TOOLS**

Impact Hammer (Slide Hammer)	750g max.
Hammer	700g max.
Screwdriver	300 mm max.
Combination Wrench	250 mm max.
Pipe Wrench	250 mm max.
Manipulation Tools:	Wire, Nylon Packing Tape, Wiring Material
	300mm flexible steel rule (or "Slim Jim")

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