



V8 XJ Series/XK

DATE 04/02

501-51

SERVICE

## TECHNICAL BULLETIN

### Memory Systems – Driver's Seat, Steering Column, Door Mirrors – Diagnostics

MODEL  
1997 MY-ON XK Range  
1998 MY-ON V8 XJ Series  
VIN  
001001-ON  
812256-ON

#### Issue:

This Technical Bulletin provides diagnostic procedures for the memory system which controls the seat, steering column, and door mirror memory.

In most cases, a memory recall problem is not caused by the memory system itself. There is often an electrical or mechanical fault with another component, resulting in the memory not recalling as expected.

#### Action:

Information to aid with diagnosing faults:

**Note:** This bulletin includes a copy of the Frequently Asked Question (FAQ) ref 2241 XK vehicles and ref 2242 V8 XJ vehicles from the Electronic Product Quality Report (EPQR) system. The information in the FAQ may be needed to help diagnose the faults.

Please read the 'Key elements of memory systems' on pages 9 and 10 of this Technical Bulletin for help on what memory functions the vehicle has. The table includes information on the modules used to store memory, the controls used to store and recall memory, and the easy entry/exit function.

When the customer first reports the concern it is recommended that you complete a '**customer memory system questionnaire**' (see page 11) to record all details of the concern.

Whenever possible identify the exact axis that is not recalling correctly, as it will be needed to help identify the cause of the fault. You should also identify if the memory fails to recall correctly during.

1. Easy entry/easy exit mode.
2. Memory recall from drivers door switch pack.
3. Memory recall from key fob.
4. Programming of memory system.

## Outline of bulletin contents

### Customer Concern

Easy entry/easy exit problem.

Memory recall problem from driver door switch pack.

Memory recall problem when using key fob.

Diagnosis of issues.

### Other information

Other sources of information to aid diagnosis.

Key elements of memory systems.

Memory system – customer questionnaire.

FAQ 2241

FAQ 2242

### Section

Flow chart 1 - Page 3

Flow chart 2 – Page 4

Flow chart 3 – Page 5

Pages 6 to 8

Page 8

Page 9

Page 11

Page 12

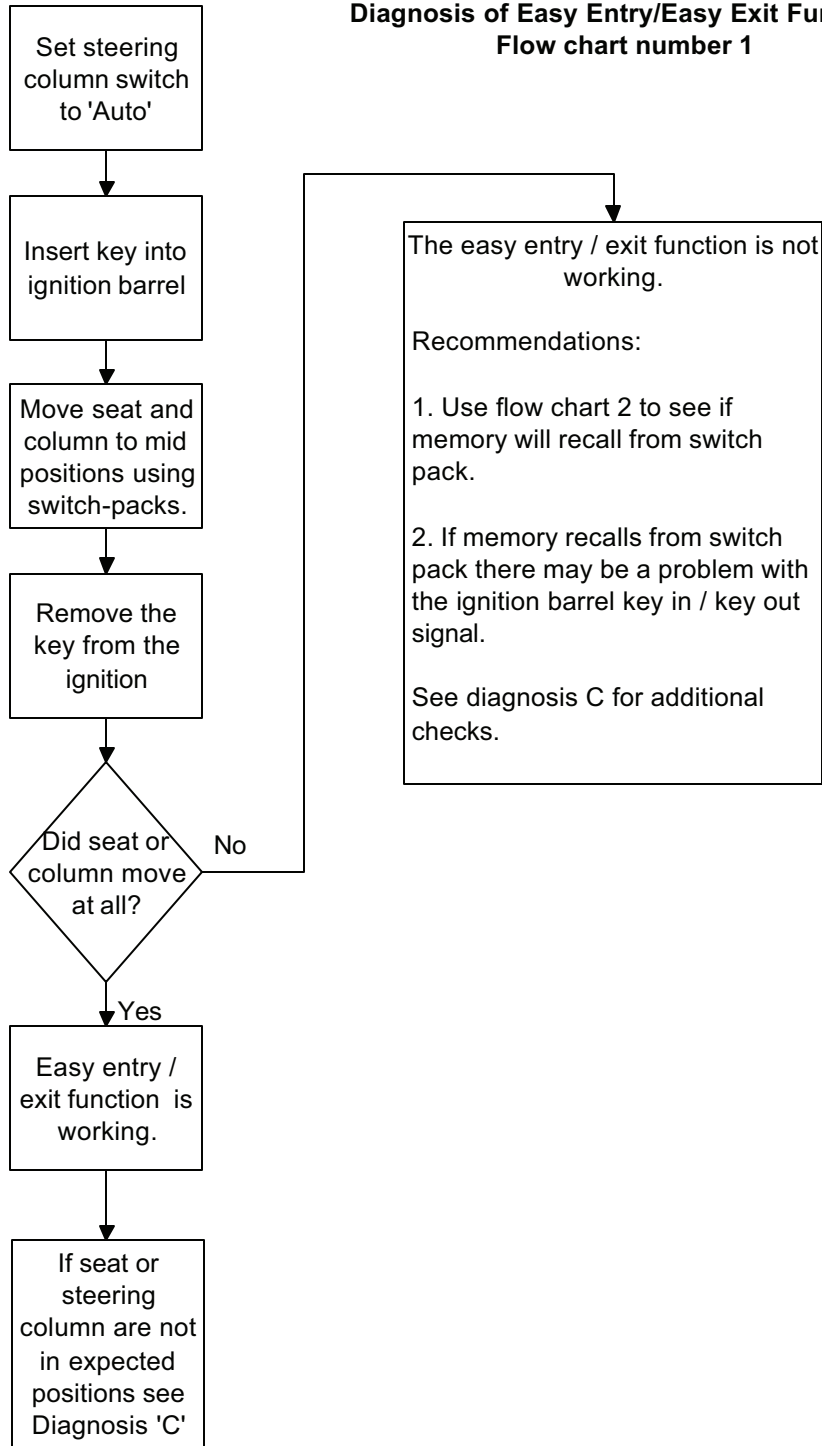
Page 13

## How to check if the easy entry / easy exit function is working correctly see – Flow chart 1.

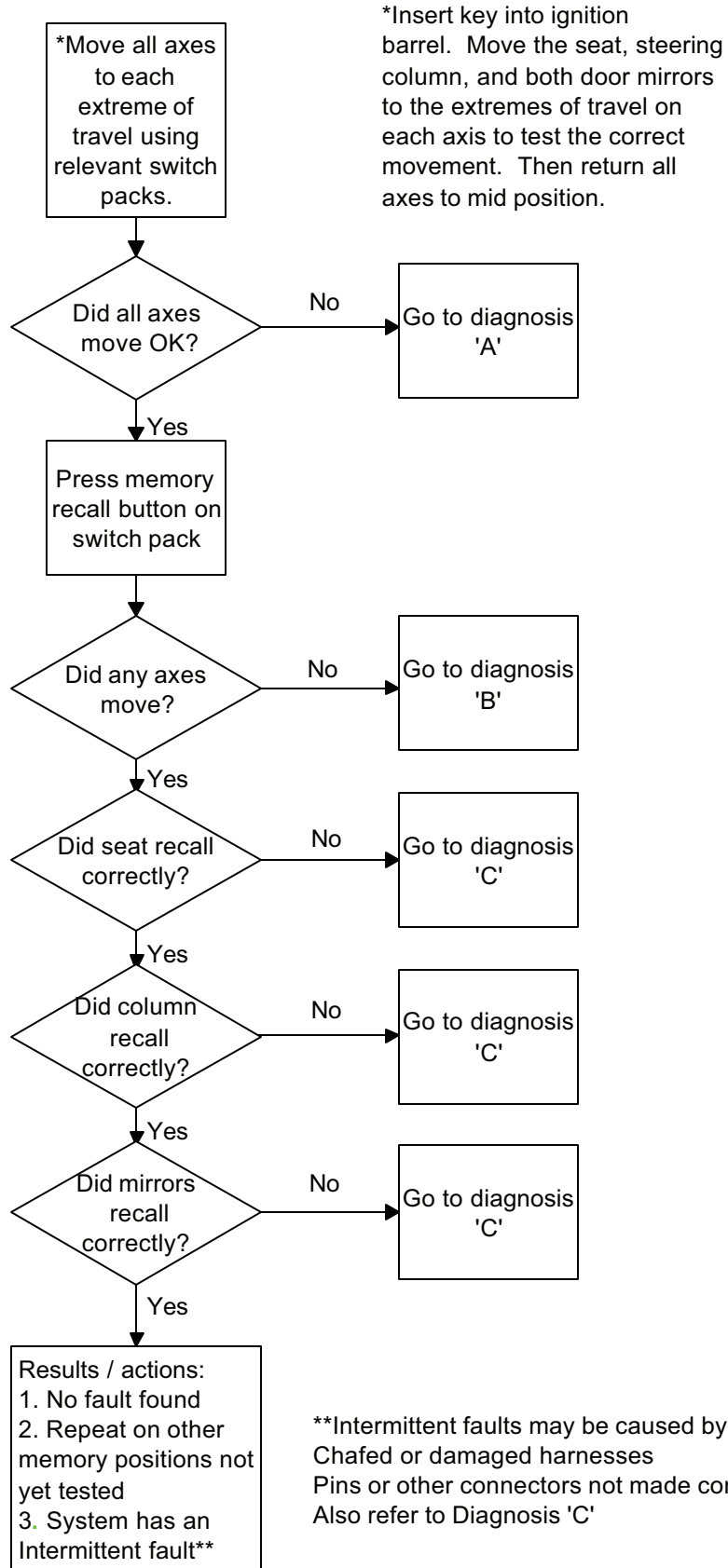
Things to know about the easy/exit function:

- 1 On V8 XJ vehicles, if the seat is within approximately 50mm of its rear most travel the seat may not move during easy entry/exit mode, as this position is outside the defined operating range for this function.
- 2 On V8 XJ vehicles, if the key fob has not been programmed with memory settings, and it is used to unlock the vehicle, the seat and steering column will recall to the last position you set and not the memorized position.
- 3 On V8 XJ and XK vehicles, if any of the manual switch packs (directional controls) are operated during easy entry/exit mode the function will cease.

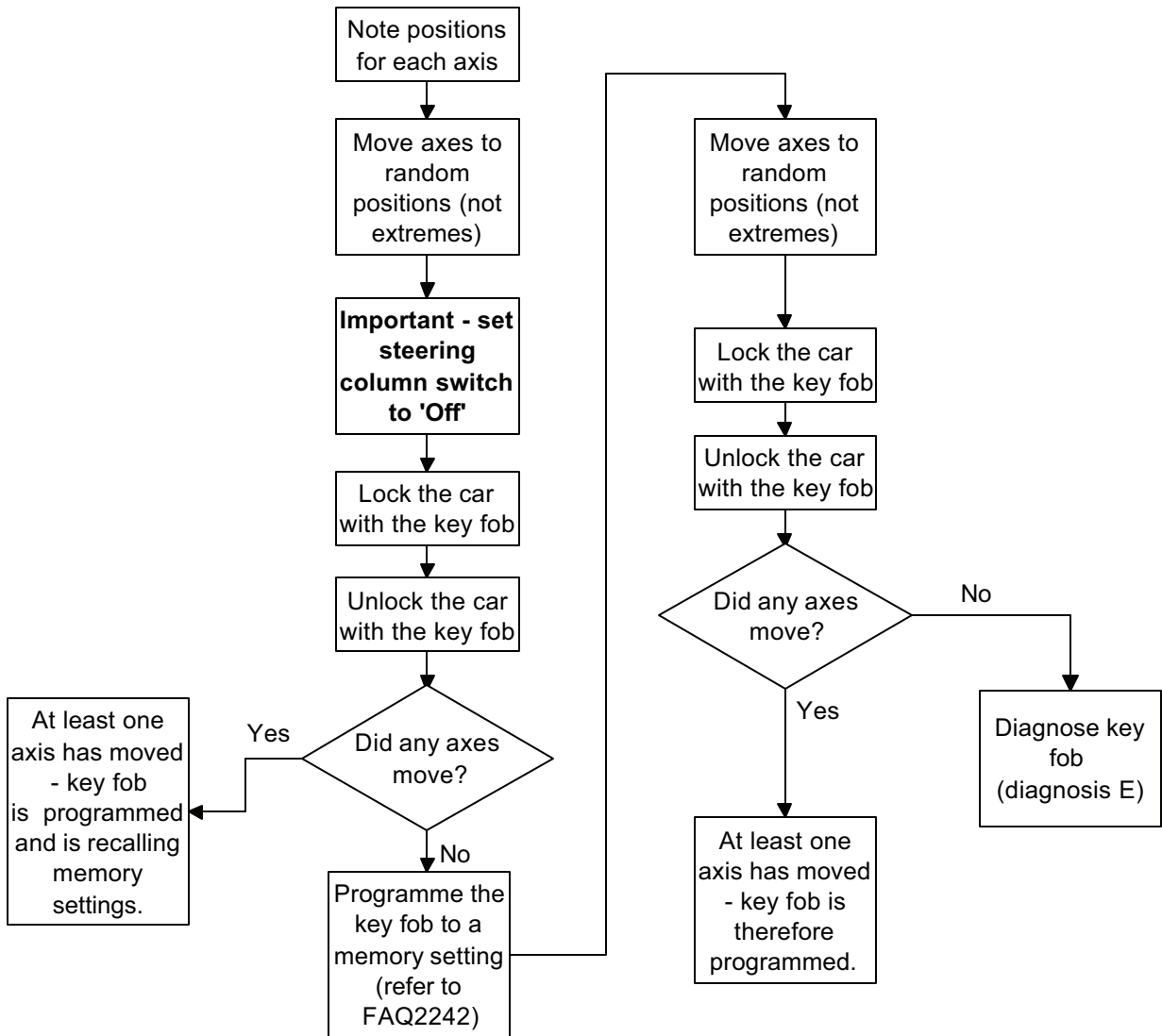
**Diagnosis of Easy Entry/Easy Exit Function  
Flow chart number 1**



**Checking memory recall from driver door switch-pack**  
**Flow chart number 2**



**V8 XJ vehicles only: Check memory recall from key fob  
Flow Chart number 3**



**Diagnosis A**– One or more axis does not move correctly when operating the applicable switch-pack. If this happens the problem may not be related to the memory system. If one axis does not recall correctly it may be caused by a mechanical or electrical problem with that part of the system rather than memory recall.

**Check points:**

- 1 If a complete system will not move then check the relevant fuses.
- 2 Chaffed or damaged harnesses.
- 3 Pins backed out of connectors.
- 4 Poor connections to motors, potentiometers, and modules.
- 5 Short or open circuits.
- 6 Motors being strained or overloaded.
- 7 Bent, buckled, or damaged mechanisms.
- 8 Worn mechanisms.
- 9 Poor connections to the controlling switch pack.
- 10 Switch pack buttons not operating correctly.
- 11 Check the type of seat that is fitted – perhaps the customer thinks the seat has more movements than it actually has.

**Diagnosis B – No memory recall from the switch pack**

If, after pressing the memory recall button on the switch pack the seat, door mirrors, steering column, and head-restraint did not move at all, the memory system does not appear to be working.

**Note:** Look at each part of the system carefully for any signs of movement – if part of a system moves even slightly then the memory system is trying to recall the stored settings. If this is the case the memory system is working, but not all positions are recalling correctly.

**Things to check if there is no memory recall at all:**

- 1 Is the driver door switch pack faulty? (Look for buttons sticking, water ingress, do the memory recall buttons appear to work ok)
- 2 Are the fuses for the memory system ok?
- 3 Has memory been programmed to a switch-pack button?
- 4 Is the driver door module working correctly?
- 5 Are the connections and harnesses to the driver door module ok?
- 6 V8 XJ vehicles only: Is the driver side rear door module working correctly/are the connections and harnesses ok?
- 7 Is the BPM working?

### **Diagnosis C – One or more axis does not return to the memorized position**

If at least one axis moves when the memory is recalled, either from the driver door switch-pack or the key fob, then the memory system is working. The problem is therefore a mechanical or electrical problem with the affected axis, or a problem with one of the modules.

**Note: It is not possible for a module to intermittently lose its memory and then re-gain it. Intermittent memory recall problems will be caused by something other than the memory system.**

#### **Check Points:**

- 1 A chaffed or damaged harness.
- 2 Loose or backed out pins to modules and the corresponding harnesses connectors.
- 3 Poor connections to motors or potentiometers.
- 4 Potentiometers not functioning correctly – use data logger to check the output of the potentiometers.
- 5 Potentiometer may be out of range – this may happen if a memory position is towards the maximum travel of an axis.
- 6 Poor connections to switch-packs.
- 7 Short or open circuits on harnesses.
- 8 Physical damage or wear of mechanical components such as slides, linkages, or gears.

### **Diagnosis D – The memory system will not store the required positions (no confirmation chime from the system)**

When programming the memory system, a chime should be heard when the 'M' memory button is pressed to confirm that the memory has been stored.

#### **If this does not happen check:**

All conditions required to program the memory system are correct. Refer to 'other sources of information' on where to find details on programming the memory system.

If the conditions have been met diagnosis of the components will be required.

#### **Check points:**

- 1 Connections to the driver door switch pack.
- 2 Correct operation of the switch pack buttons.
- 3 Connections to the driver front door module.
- 4 Harness integrity to the switch pack and door module.
- 5 Connections to the body processor module.
- 6 Correct operation of the BPM.
- 7 V8 XJ vehicles only – correct operations and connections to the driver rear door module.

## **Diagnosis E – Key fob does not recall memory settings**

This section deals with the key fob not recalling any memory positions – the seat, steering column, door mirrors, and head restraints do not move at all. If this is the case it may be a key fob issue rather than a memory issue.

### **Check points:**

- 1 Does the locking and security system work correctly? If it does not it may indicate that the SLM is the cause of the problem.
- 2 Has the key fob been programmed with memory setting?
- 3 When programming the fob does the vehicle give a chime to confirm the memory has been assigned to the fob?
- 4 Is the key fob battery OK?

### **Other sources of information to aid diagnosis:**

WDS can be used in data logger or guided diagnostics modes to help pinpoint the source of concern.

Technical Bulletin: 501-35 – V8 XJ memory front seat potentiometer adjustment or replacement.

Frequently Asked Questions (FAQ) from the Electronic Product Quality Report (EPQR) system (attached to the back of this bulletin).

- 1 2241 – XK memory system.
- 2 2242 – V8 XJ memory system.



**Key elements of memory systems on V8 XJ and XK vehicles:**

**Modules used for memory storage**

Model and memory system feature	V8 XJ	XK
Driver seat memory is stored in:	Driver's Seat module	Driver's Seat module
Driver head restraint memory is stored in:	Driver's Seat module	Driver's head-restraint module
Passenger head restraint memory is stored in:		Passenger head restraint module (for dump feature only)
Driver door mirror memory is stored in:	Driver's door module	Driver's door module
Passenger door mirror memory is stored in:	Passenger's door module	Passenger's door module
Steering column memory is stored in:	Body Processor module	Body Processor module

**Controls for memory recall and storage**

Store memory settings using:	Driver's door switch pack	Driver's door switch pack
Can key fobs be programmed with memory settings?	Yes	No
Can key fob memory programming be cleared?	Yes	
Memory recall available from: (*only when programmed)	Driver's door switch pack & key fob*	Driver's door switch pack only
Memory recall type, using driver door switch pack:	One touch	Hold memory recall button down
Number of memory storage positions available	3	2

### Controls for memory recall and storage (continued)

Model and memory system feature	V8 XJ	XK
Sequence to set memory on driver door switch pack:	Press 'M', red light on switch pack illuminates, press numbered button within 4 seconds	Press 'M', red light on switch pack illuminates, press numbered button within 4 seconds
Confirmation that memory has been set:	Chime	Chime
Confirmation that a memory setting has been recalled correctly:	No confirmation	Chime

### Easy entry / easy exit function

Does seat move in easy entry / easy exit mode?	Yes	No
Does seat move fully rearwards in easy entry / exit mode?	No	
Does steering column move in easy entry / easy exit mode?	Yes – fully up and fully forward	Yes – fully up and fully forward
What happens if a switch pack is manually operated during memory recall	The affected system will stop memory recall (e.g. seat, column, or mirrors).	When recall button is released memory recall will stop on all axis

### V8 XJ Driver's Rear Door Module

- The driver's door switch-pack is connected to the Driver's Rear Door Module (DRDM) on V8 XJ vehicles.
- The DRDM sends a 'set memory' command to the Driver Door Module (DDM) and receives the memory recall command from the driver door switch pack.
- The DRDM is responsible for checking that the operational conditions are correct for memory operations to occur.

It also checks the key fob identification when memory recall is requested from the key fob, via the SLM.

Memory System – Customer Questionnaire						
VIN Number:			Customer Name			
Model:	V8 XJ	XK	S-TYPE	Date		
How does the customer describe the concern?						
Has the customer reported this concern before?		Yes		No		
Is the concern intermittent or constant?		Intermittent		Constant		
If the concern is intermittent, how long elapses between occurrences?		1 WK	2 WK	3 WK	4 WK	Random
<b>Tick the following boxes to show which elements of the memory system is not working correctly. If that part of the system is working correctly tick 'OK.'</b>						
Seat position	Forward / rearward	Up / down	Recline	OK		
Column position	In / Out	Up / Down		OK		
Passenger mirror	In / Out	Up / Down		OK		
Driver mirror	In / Out	Up / Down		OK		
Head restraint	Up / Down			OK		
Memory position?	Memory 1	Memory2	Memory3			
Recall from driver door switch pack?	Problem	OK				
Recall from key fob?	Problem	OK				
Have memory positions been programmed into fob?	Yes	No				
Steering column set to Auto?	Yes	No	Don't know			
Was customer last person to drive the car?	Yes	No	Don't Know			
If no, did the other driver use a memory position?	Yes	No	Don't know			

## **FAQ 2241 – XK8 memory system**

Before any repair is carried out it is suggested that the memory system is checked to ensure it is set up correctly. This document outlines how the system is designed to operate on XK8.

### **XK8 memory system set up procedure**

#### **Storing a driving position in memory using the driver door switch pack**

- I. Press the "memory" button on the driver door switch pack
- II. A red light will illuminate on the switch pack
- III. Within 4 seconds of the light coming on, press one of the numbered memory buttons (1, or 2).
- IV. A chime will sound to indicate the memory has been stored on the selected memory button and the light will go out.

#### **Use of key fob**

On XK8 the key fob DOES NOT recall memory positions and cannot be programmed.

#### **Recalling memorized driving positions**

Using the driver door switch pack can only perform recall of memorized driving positions. There are some conditions that must be met for the system to work when the recall is selected:

- To recall a memorized position it is necessary to press and hold the appropriate memory recall button (1 or 2) until a chime is heard, this is when the memorized position has been reached.
- The gear selector must be in Park or Neutral  
AND...
- The key must be in the ignition switch [and must be at position I or II]  
OR
- The driver's door is open  
OR
- The memory recall button is pressed within 30 seconds of the driver's door being closed.

#### **Easy Entry / Exit Function**

- This function will only operate when the steering column adjustment switch is set to the "Auto" position.
- This function DOES NOT affect the functionality of the memory system or the manual movement of the seat, mirrors, headrest, or steering column.

- If the customer has selected "Auto" and the steering column is in the process of moving to the easy entry / exit position, using the seat or column adjustment switches will stop the easy entry / exit function until it's next use.
- The easy entry / exit function will operate whether the car is opened with the key or the key fob, and the key fob DOES NOT need to be programmed (XJ8 only) for this function to work.
- The function only operates the steering column tilt away feature.
- The function will only operate when inserting the key into the ignition switch, or removing the key from the ignition switch.

### **FAQ 2242 - XJ8 memory system**

Before any repair is carried out it is suggested that the memory system is checked to ensure it is set up correctly. This document outlines how the system is designed to operate on XJ8.

#### **XJ8 memory system set up procedure**

##### **A. Storing a driving position in memory using the driver door switch pack**

1. Set the driving position as required
2. Ensure the key is in the ignition switch
3. Press the "memory" button on the driver door switch pack
4. A red light will illuminate on the switch pack
5. Within 4 seconds of the light coming on, press one of the three numbered memory buttons (1, 2, or 3) located on the driver door switch pack.
6. A chime will sound to indicate the memory has been stored on the selected memory button and the light will go out.

##### **B. Programming the key fob to recall a memorized driving position**

Memorized driving positions can be recalled from the key fob when the unlock button is pressed. The key fob must be programmed to do this.

##### Method:

1. Set the driving position as required
2. Ensure the key is in the ignition switch
3. Press the "memory" button on the driver door switch pack  
(The red light on the switch pack will illuminate)
4. Within 4 seconds press the desired numbered memory button on the switch pack (1,2, or 3)
5. A chime will sound to indicate the memory has been stored and the light will go out.
6. Within a further 5 seconds press any button on the key fob
7. There will be a chime and the switch pack light will flash. The switch pack and key fob are now set to the same memory position (1,2, or 3).

Once the key fob is programmed (to memory 1,2, or 3), there is no need to re-program the key fob if a new driving position is stored in the same memory position.

**C. How to clear the memory recall function from the key fob**

- a. Ensure the key is in the ignition switch
- b. Press the "memory" button on the driver door switch pack
- c. The light on the switch pack will illuminate
- d. Within 4 seconds press any button on the key fob twice.
- e. The light will go out and 2 chimes will sound to confirm the memory recall for that key fob has been erased.

**D. Recalling memorized driving positions**

Recall of memorized driving positions can be performed either by using the driver door switch pack or the key fob. There are some conditions that must be met for the system to work when the recall is selected:

- The gear selector must be in "park" or "neutral"  
AND
- The driver's door is open  
Or
- A memory recall button is pressed within 30 seconds of the driver's door being closed  
Or
- The key is in the ignition switch (driver's door can be open or closed)
  
- If the key fob is used it must be programmed
- Memory cannot be recalled whilst the car is in motion.
- Memory recall from the switch pack is 'one-touch' operation

**E. Easy Entry / Exit Function**

- This function will only operate when the steering column adjustment switch is set to the "Auto" position.
- This function DOES NOT affect the functionality of the memory system or the manual movement of the seat, mirrors, headrest, or steering column.
- If the customer has selected "Auto" and the steering column is in the process of moving to the easy entry / exit position, using the seat or column adjustment switches will stop the easy entry / exit function until it's next use.
- The easy entry / exit function will operate whether the car is opened with the key or the key fob, and the key fob DOES NOT need to be programmed (XJ8 only) for this function to work.

The function will also operate when inserting the key into the ignition switch, removing the key from the ignition switch, or with the key in the ignition switch and opening the driver's door.