



# TECHNICAL BULLETIN

S501-14v2

04/2002

## Subject

### DIAGNOSTIC PROCEDURE FOR MEMORY SYSTEMS

Model: S-TYPE

Year: 1999 Onwards

VIN L00600 Onwards

Section: 501

Body Systems

## Summary

This Technical Bulletin will aid in diagnosing memory system concerns (recall of drivers seat, steering column, and door mirrors).

**This Technical Bulletin has been issued for the change in the FAQ number and is a replacement for Technical Bulletin S501-14, please destroy all copies of S501-14 and replace it with this Technical Bulletin S501-14v2.**

## Memory System Diagnosis

This Technical Bulletin will help eliminate the possible causes of a memory recall concern. 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.

## Information to aid with diagnosing faults

**Note: Before starting work on the car it is recommended that you print a copy of Frequently Asked Question (FAQ) ref 2101 on S-TYPE, 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 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**' to record all the details of the issue. A copy of the questionnaire is included in this bulletin.

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.

**Section**

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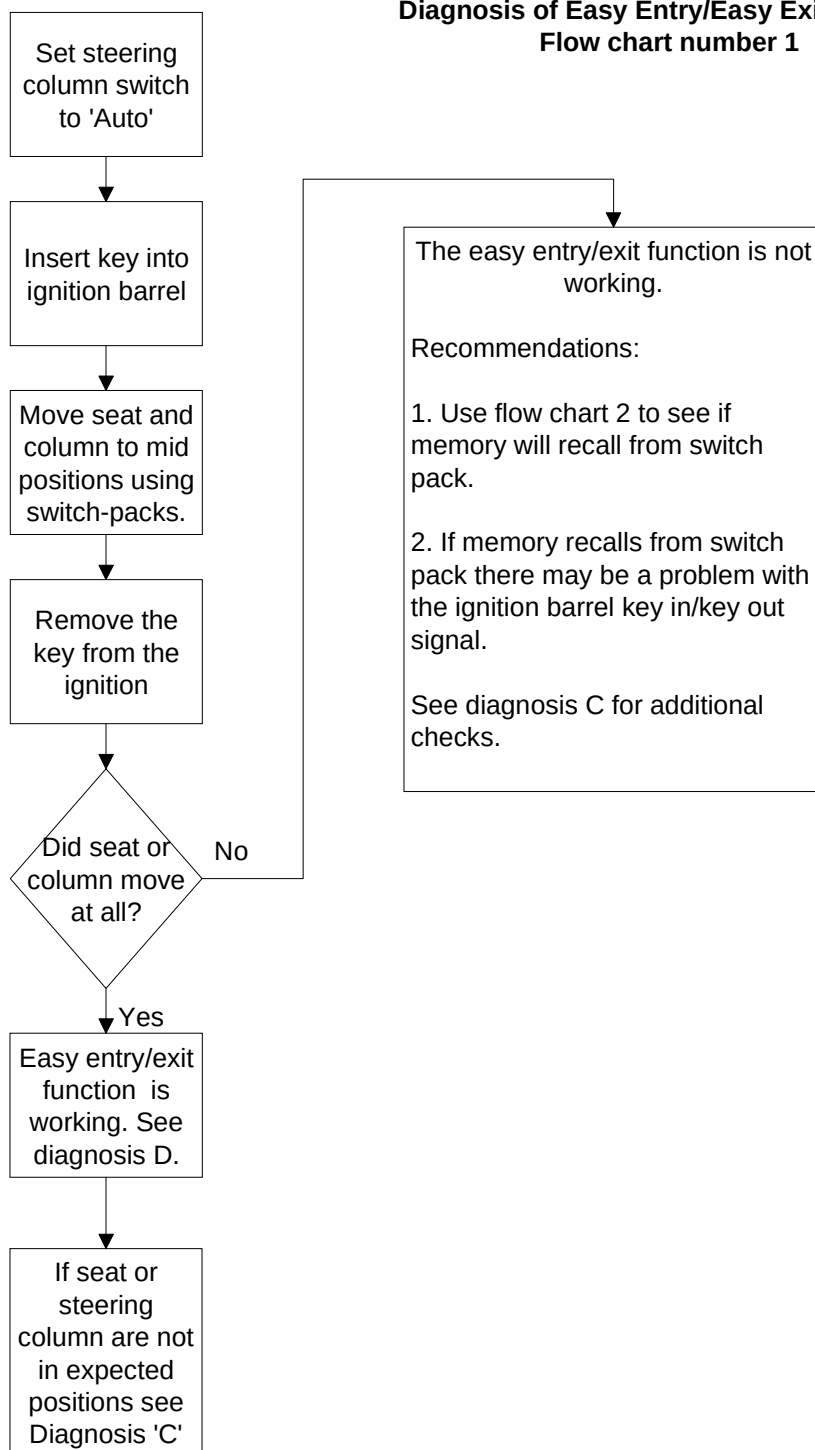
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**How to check if the easy entry/easy exit function is working correctly see – Flow chart 1.**

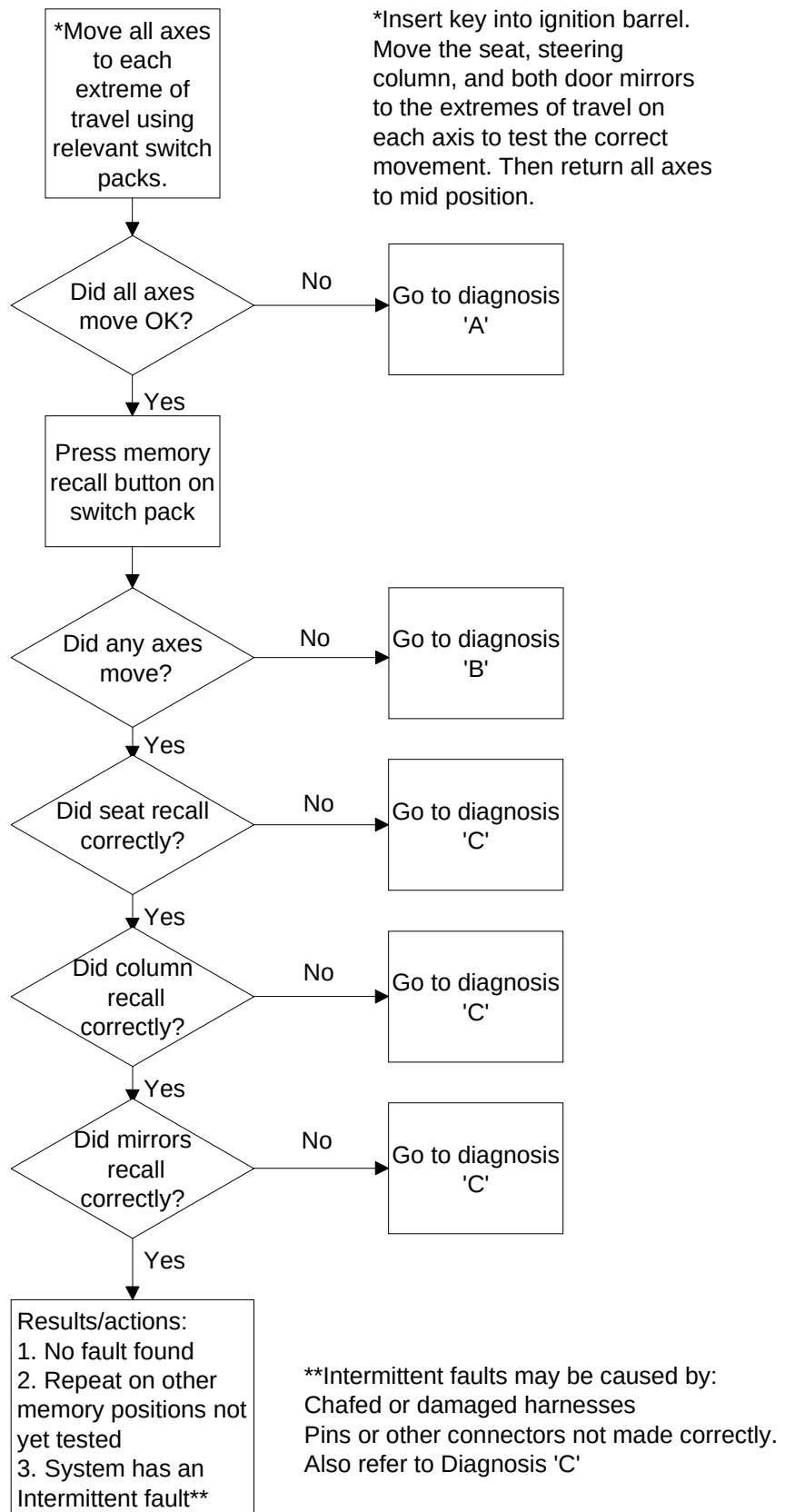
Things to know about the easy/exit function:

- 1 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 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 If any of the manual switch packs (directional controls) are operated during easy entry/exit mode the function will cease.

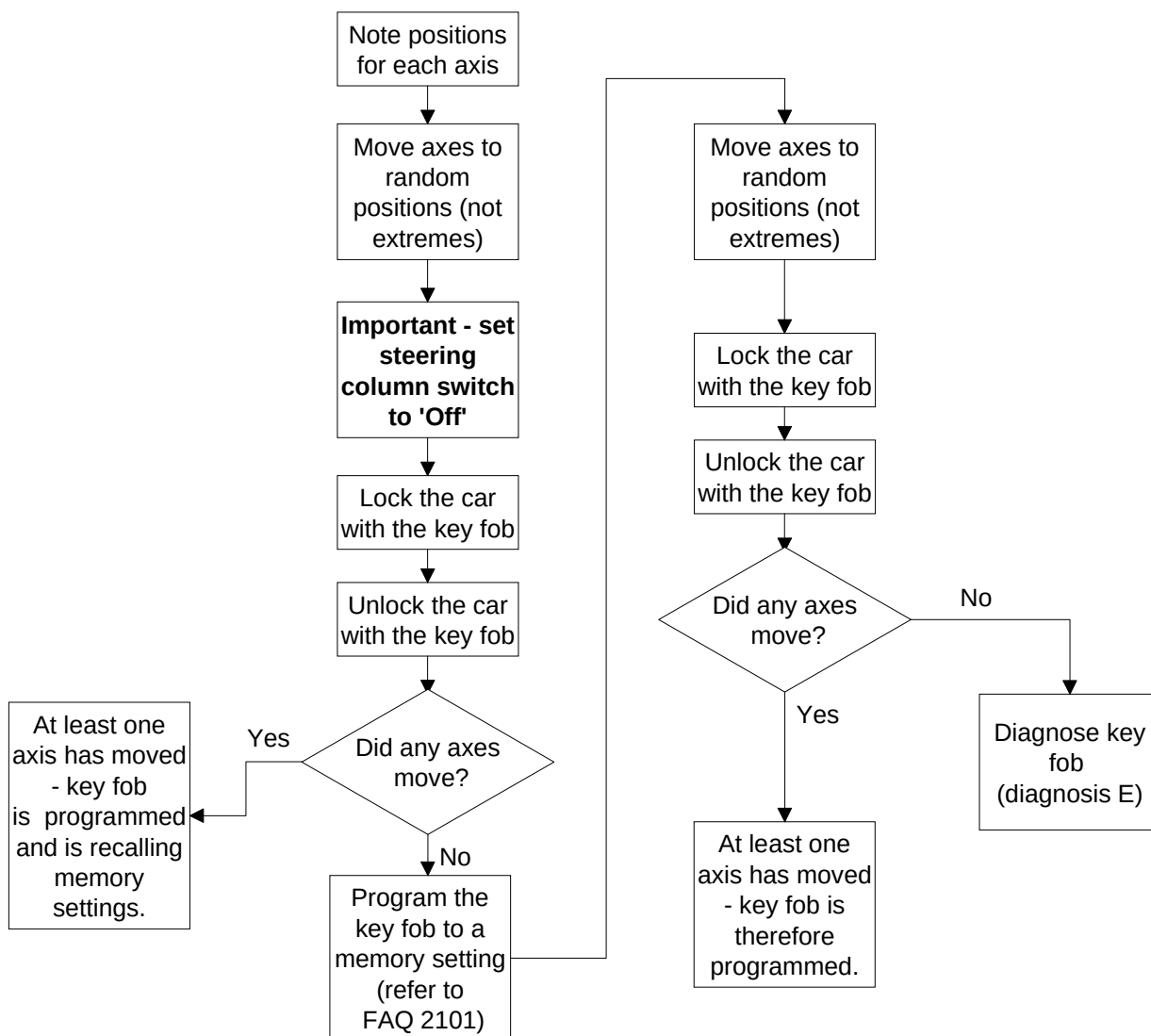
**Diagnosis of Easy Entry/Easy Exit function**  
**Flow chart number 1**



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



**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 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. Therefore, the problem is 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.

**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. Frequently Asked Questions (FAQ) available on Electronic Product Quality Report (EPQR) system.
- 1 2101 – S-TYPE memory system.



**Key elements of memory systems on V8 XJ, XK, and S-TYPE vehicles:**

| <b>Modules used for memory storage</b>                |                                      |                                                         |                                      |
|-------------------------------------------------------|--------------------------------------|---------------------------------------------------------|--------------------------------------|
| Model and memory system feature                       | V8 XJ                                | XK                                                      | S-TYPE                               |
| Driver seat memory is stored in:                      | Driver's Seat module                 | Driver's Seat module                                    | Driver's Seat module                 |
| Driver head restraint memory is stored in:            | Driver's Seat module                 | Driver's head-restraint module                          | Driver's seat 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                                    | Driver's door module                 |
| Passenger door mirror memory is stored in:            | Passenger's door module              | Passenger's door module                                 | Passenger's door module              |
| Steering column memory is stored in:                  | Body Processor module                | Body Processor module                                   | Body Processor module                |
| <b>Controls for memory recall and storage</b>         |                                      |                                                         |                                      |
| Store memory settings using:                          | Driver's door switch pack            | Driver's door switch pack                               | Driver's door switch pack            |
| Can key fobs be programmed with memory settings?      | Yes                                  | No                                                      | Yes                                  |
| Can key fob memory programming be cleared?            | Yes                                  |                                                         | Yes                                  |
| Memory recall available from: (*only when programmed) | Driver's door switch pack & key fob* | Driver's door switch pack only                          | Driver's door switch pack & key fob* |
| Memory recall type, using driver door switch pack:    | One touch                            | Hold memory recall button down                          | One touch                            |
| Number of memory storage positions available:         | 3                                    | 2                                                       | 2                                    |

| <b>Controls for memory recall and storage (continued)</b>                |                                                                                         |                                                                                         |                                                                                         |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Model and memory system feature                                          | V8 XJ                                                                                   | XK                                                                                      | S-TYPE                                                                                  |
| 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 | Press 'M', red light on switch pack illuminates, press numbered button within 4 seconds |
| Confirmation that memory has been set:                                   | Chime                                                                                   | Chime                                                                                   | Chime                                                                                   |
| Confirmation that a memory setting has been recalled correctly:          | No confirmation                                                                         | Chime                                                                                   | No confirmation                                                                         |
| <b>Easy entry/easy exit function</b>                                     |                                                                                         |                                                                                         |                                                                                         |
| Does seat move in easy entry/easy exit mode?                             | Yes                                                                                     | No                                                                                      | Yes                                                                                     |
| Does seat move fully rearwards in easy entry/exit mode?                  | No                                                                                      |                                                                                         | No                                                                                      |
| Does steering column move in easy entry/easy exit mode?                  | Yes – fully up and fully forward                                                        | 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                      | The affected system will stop memory recall (e.g. seat, column, or mirrors).            |

| Memory System – Customer Questionnaire                                                                                                                           |                  |              |                |          |      |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|----------------|----------|------|--------|
| VIN:                                                                                                                                                             |                  |              | 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     |          |      |        |