

SEQUENTIAL SHIFTING MECHANISM SQS

We wish to thank You for purchasing our product and hope you compete successfully with this equipment.

This product is intended to **Mitsubishi Lancer EVO** from **IV** to **IX** with 5 speed transmission W5M51. You can use it for STOCK SYNCHRO transmission or for DOG transmissions from different manufacturers.

Type of transmission is stated on the box.

In the appendix is described, how to determine the type of your transmission after bowden travels.

Our product is industrial protected - U1 No. 10686.

This product is intended only for racing and is not homologated for highway use.

<u>Index:</u>		Page
Operating instructions		2
Fitting procedure	-1. Disassembling of the stock shift mechanism	2
	-2. Modification of gear lever on the transmission	2
	-3. Modification of stock bowdens	3
	-4. Installation of the SQS	3
	-5. Installation of indication display	4
	-6. Adjustment of the SQS	5
	-7. Installation of control unit for shifting solenoid	5
Maintenance		5
Appendix	- Types of transmissions	
	- Modification stock bowdens	
	- Photos	

Operating instructions

The sequential shifting mechanism allows you to change gears by moving the gear shift lever forward and backward. Shifting of the neutral and the reverse gear is blocked. The transmission is put into neutral as follows: by repeated forward movements of the gear shift lever shift 1st gear, indicated “1” on the display. To engage the neutral, lift the ring on the gear shift lever with your fingers upwards, towards the gear shift lever knob, and by moving the gear shift lever all the way forward engage the neutral, indicated “0” on the display and the reverse gear, indicated “r”.

Forward gears from 1st to 5th are indicated by displaying the corresponding number.

!Attention! From the neutral it is possible shift 1st gear or the reverse gear without blocking.

Fitting Procedure

Before you start, make sure that the product is the right type for your car and gearbox.

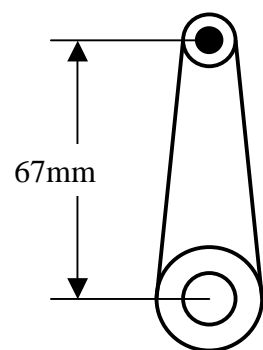
- 1. Disassembling the stock shift mechanism
- 2. Modification of gear lever on the transmission
- 3. Modification of stock bowdents
- 4. Installation of the SQS
- 5. Installation of an indication display
- 6. Adjustment of the SQS
- 7. Instalation of control unit for shifting solenoid

1. Disassembling of the original shifting mechanism

- Shift the neutral
- Remove the battery and its holder
- Disassemble stock shifting „H“ mechanism including bowdents, according to original service documentation.

2. Modification of the gear lever on the transmission :

The gear lever on the transmission must be 67 mm long. If the length is different (for example, the lever marked „F“ has length of 71mm), it is necessary to modify the lever. If there is a weight on the gear lever, it have to be all removed



3. Modification of stock bowdents :

- Modify the bowdens according to picture in the appendix. Screwing dies M6 and all needed parts are supplied with the SQS.

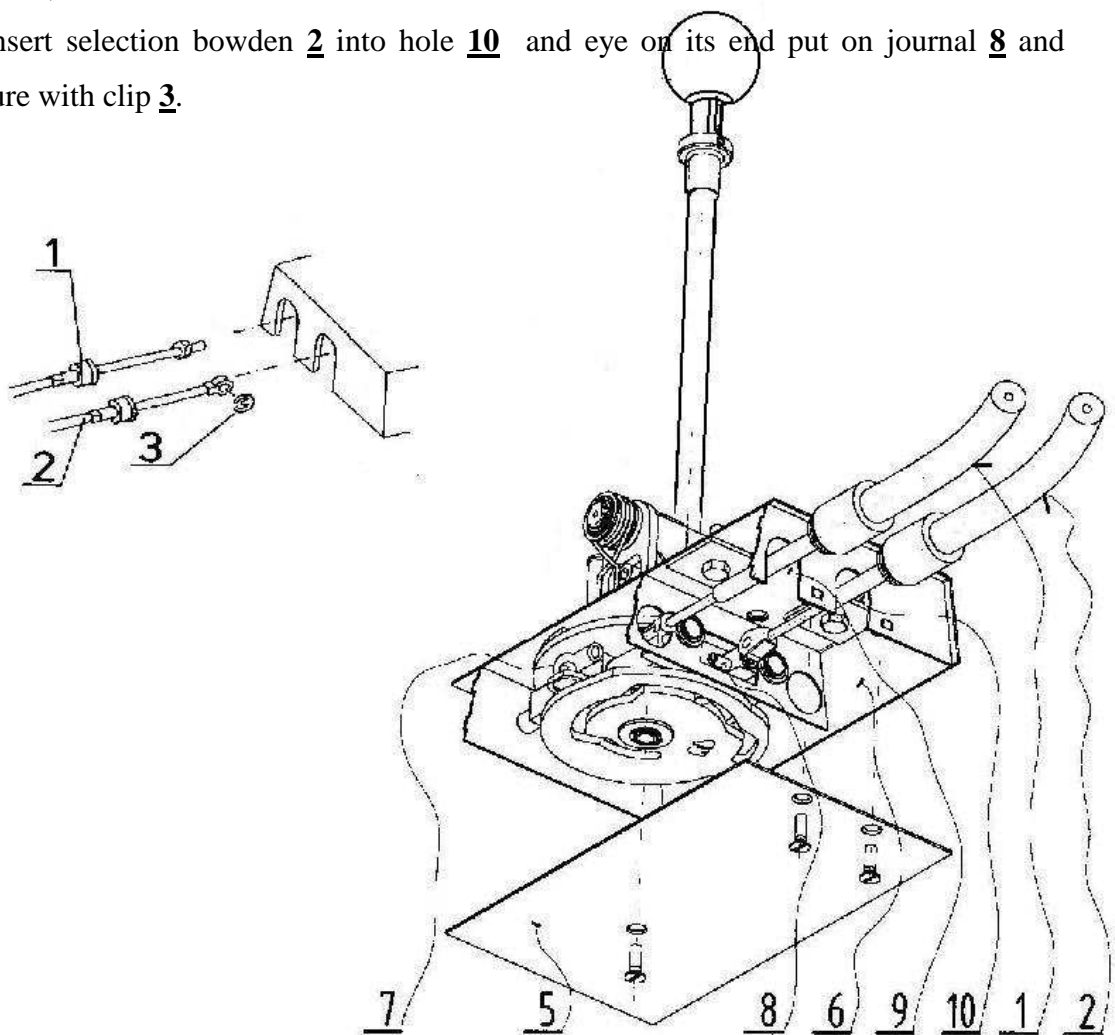
4. Installation of the SQS:

- Put the gear shift lever on the SQS, tight its bolt M10 cca 25 Nm.
- Bowden and cable of blocking mechanism (for blocking the reverse gear and neutral):

Push in ends of the bowden. Adjust the cable as follows: Loosen the bolt M4 and draw the cable to lift the pin cca 1mm, but not more and tight the bolt.

If you want to inactivate the blocking of the reverse gear and neutral, lift fully the pin and then tight the bolt.

- Disassemble the cover 5 – see picture bellow
- Insert shifting bowden 1 into hole 9 in SQS body 6 (its end has thread M6, without eye) and screw it fully into ball joint on the ball journal 7. Apply locking agent (Loctite).
- Insert selection bowden 2 into hole 10 and eye on its end put on journal 8 and secure with clip 3.



- Assemble cover 5.

- Mount SQS holders on car body with M8 bolts.
- Insert bowdens into body.
- Mount on these holders with M6 bolts.
- Secure bowdens in its holder on the transmission. Don't connect bowdens with levers on the transmission.

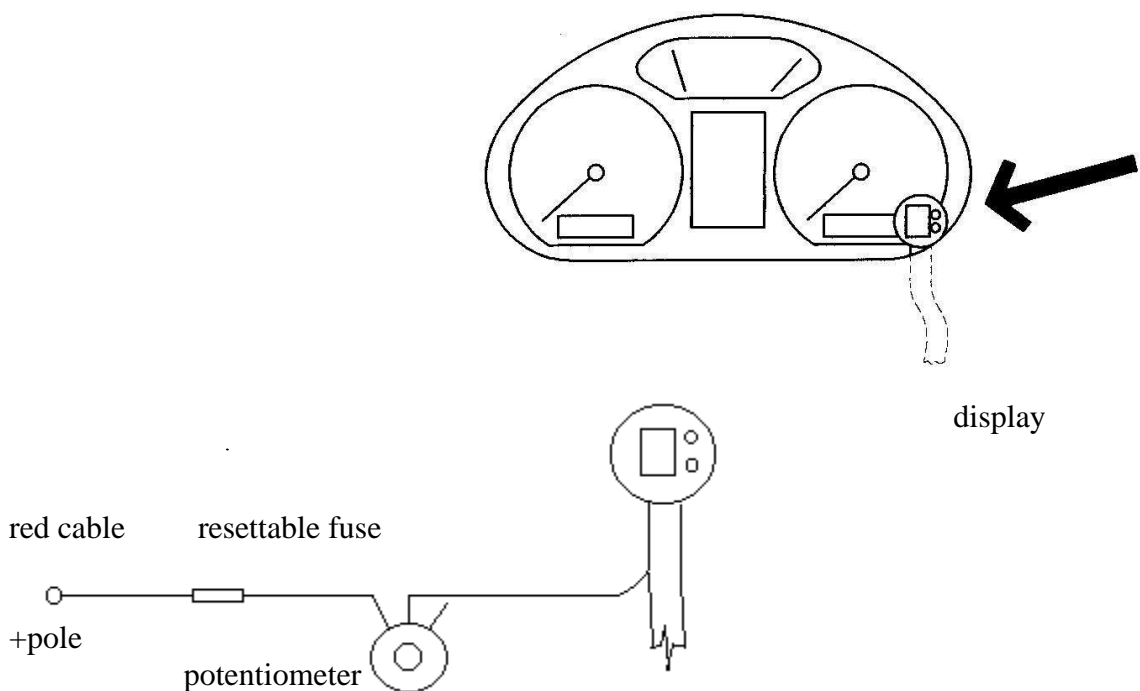
Don't mistake the selection bowden and shifting bowden.

5. Installation of indication display

Carry out all necessary fitting and disassembling in interior as instructed in the Service Manual.

- Place the display as shown on picture below, or where you want to see it.
- Connect the cable from display to the indication control unit as shown on photo.
- Red end of the cable, equipped with resettable fuse connect to +12V, which is disconnected from the battery, when the ignition is OFF. Suitable is for example cable leading to cigarette lighter (see photo).
- For regulation of the display brightness (for example at night), you can install potentiometer (3W; 2,2 kΩ). Break red cable between fuse (hidden in black insulation) and display.

These cable ends solder to middle and one of outer contacts of potentiometer (see picture below) .



6. Adjustment of the SQS

The travels of gear levers on the transmission from neutral position must be equivalent on both sides and must match with travels of SQS.

- Connect the battery.
- By movements of gear shift lever shift the neutral on SQS, indicated „0“ on display.
- Disconnect the battery
- Check, if there is neutral on the transmission too.
- Adjust ends of bowdrens to be easy to put them on ball journals on gear levers. Put them on and secure them with clips.
- Try to shift all gears and neutral. It is recommended to try it when engine works.
- If everything is OK, adjustment is finished.
- If you have any problems, call your SQS distributor.

7. Instalation of control unit for shifting solenoid

- Connect supply cable equipped with 40A fuse directly to +12V on battery. Take out this fuse before you start. Place the cable as shown on picture and fasten delivered connector on its end in interior.
- Install the control unit near to the SQS connect its connectors.
- Fasten the brown cable to the body. It must be reliably connected to the body, because of high amperage.
- Thin red cable connect as to the same cable as the red one from the display to +12V, which is disconnected from battery, when the ignition is OFF. Suitable is yellow-red cable leading to cigarette lighter (see picture).
- Install the 40A fuse.

Maintenance

Most of parts are moving in rolling bearings. It is enough to lubricate them yearly. Suitable is for example oil spray with hose. Lubricate the joint of shifting lever and all accessible parts.

All bolts and nuts connections must be properly tighten. Shifting mechanism must be always well adjusted. After all transmission works and repairs must be the shifting mechanism adjusted again.

Fast check of SQS adjustment: Shift neutral, indicated „0“ on display. Disconnect bowdrens from shifting levers on the transmission. The position of bowdrens ends and ball joints on shifting levers must match.

Caution

The shifting solenoid is always activated, when shifting lever moves from neutral position towards any gear. Its activity last for 0,3 s.

This solenoid is only power assisting device and in higher rpms it is necessary to shift with sufficient energy and speed before power assistance ends.

If you dont shift the gear succesfully, you can then shift this gear without assistance of the solenoid, but you have to overcome strong shifting forces of the transmisstion, or shift the previous geat and then shift again.

! When the ignition is ON while mounting on the transmission, pay attention to possibility of activation of the shifting solenoid and following movement of the shifting mechanism. You can prevent this by shifting neutral indicated by „0“ on the display !

In case of racing DOG transmission it is possible to use built in Shift cut switch in SQS.

Shift cut connector (only on dog type) is on opposite side to bowdens. It could be used for shift cut during nonclutch shifting – e.g. for reducing fuel injection or disconnection ignition. Switch is pressed by every shifting (up and down) – its contacts are connected by this shifting – utilize that according your ECU possibilities.

