



THE CECIL KIMBER COLLEGE

MGST02I

MG ZS 20MY

TECHNICAL INTRODUCTION



## WELCOME TO MG TRAINING

THE AIM OF THIS PUBLICATION IS TO PROVIDE TECHNICIANS THE TECHNICAL INFORMATION THEY REQUIRE TO EFFECTIVELY ASSIST THEM IN THEIR DAY TO DAY WORKING ENVIRONMENT.

THIS WORKBOOK IS DESIGNED TO AUGMENT NOT REPLACE CURRENT REFERENCE AND DIAGNOSTIC MATERIAL

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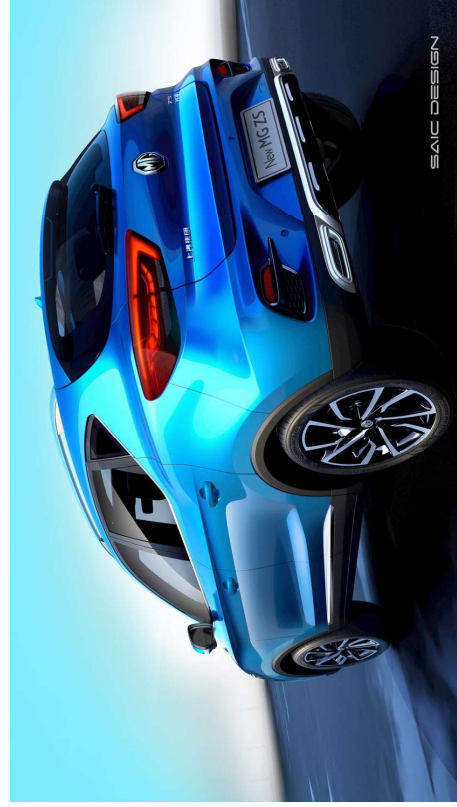
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## MGST021 - MG ZS 20MY TECHNICAL INTRODUCTION



### MG ZS 20MY – Introduction



Images shown are of China spec car, these may differ slightly from UK cars



## MGST021 - MG ZS 20MY TECHNICAL INTRODUCTION



### Body Styling Changes

MG ZS 20MY exterior changes are centred around the new styling incorporated into the front and rear bumpers.

At the front, the all new 'hexagonal' style grille and sculpted fog lamp recesses provide the impression of greater size and a more aggressive look.

The clever use of non body coloured paint and faux ventilation grilles add to this modern styling package.

The headlamps have undergone slight changes to the shape, but extensive change internally. Clever use of LED styling techniques means that when illuminated the headlamp units look completely new.



Daytime running lights, side lights, indicators, headlamp main and dipped beam consist of full LED illumination meaning that the sealed units consume less power whilst benefitting from a longer life associated with LED technology.

The optional new styled front fog lamps remain bulb illuminated.

Rear bumper re-styling has created a completely new look to the rear end of the MG ZS 20MY.

Changes to the main central area styling has seen the relocation of the PDC sensors, now split between 2 levels and wrap the number plate recess.

The most noticeable change is the modern sculpting of the rear fog lamp recesses, again clever use of non body coloured paint makes these stand out and provide a much deeper, wider appearance of the vehicle

The clever use of faux exhaust outlets provide the impression of twin exhaust pipes more common on powerful SUV's

From a technical aspect the fittings, removal and refitment process for both bumpers and lamps remain the same.



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Sculpting changes to the rear lamp units now mean that the core shape of the unit follows the body lines of the rear quarter panels, this provides a more rounded appearance of the rear end.



Whilst the full lamp is still split into 2 assemblies, one fitted to the body, the other mounted in the tailgate, the most noticeable difference appears when the lights are switched on. Clever use of the design capabilities of LED's within the tail lamp and stop lamps allow the MG ZS 20MY to have a very distinctive appearance that is completely different to the existing model.

The rear indicators, reverse and rear fog lamp retain bulbs and the remove/refit process remains the same.

### Interior

Whilst the basic layout of the interior remains the same there are areas of changes that provide the cabin with a fresh, more modern look.







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These include:

New In Car Entertainment Screen



New Centre Console Layout on Auto Models





## MGST021 - MG ZS 20MY TECHNICAL INTRODUCTION



A choice of Instrument Packs, Analogue or Full Virtual





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### New Features

Feature	I.5 Man Explore	I.5 Man Excite	I.5 Man Exclusive	I.0 Auto Excite	I.0 Auto Exclusive	I.0 Man Exclusive
Keyless Entry (PEPS)	-	-	-	X	X	X
Electric Steering Column Lock	-	-	-	X	X	X
Electric Park Brake	-	-	-	X	X	-
Push Button Start/Stop	-	-	-	X	X	X
Analogue IPK	X	X	-	X	-	-
Virtual IPK	-	-	X	-	X	X
360 Vision System	-	-	O	-	O	O
Full LED Front Lighting	X	X	X	X	X	X
Rear Driver Assist System	-	-	X	-	X	X
Panoramic Sunroof	-	-	O	-	O	O
Front Fog Lamps	-	-	X	-	X	X
Hill Decent Control	X	X	X	X	X	X

X - Standard Equipment

O - Optional





## MGST021 - MG ZS 20MY TECHNICAL INTRODUCTION



### Technical Specifications

Engine	
Capacity	1.5 DVCT 1.0 Turbo
Bore x Stroke	1.498 0.999L 74 x 84.8 mm 74 x 77.4 mm
Comp Ratio	11.5:1 10.5 :1
Rated power	78kW/6000 rpm 92kW/5200 rpm
Max Torque	141 Nm/4500 rpm 170Nm/2000 rpm
Idle Speed	680 rpm 880 rpm +/- 25
Max Speed	6800 rpm 6800 rpm

Transmission Ratio : 1			
	5 Speed	6 Speed (6P17)	6 Speed Auto
1st	3.5385	3.727	4.667
2nd	1.9524	1.952	2.533
3rd	1.2903	1.31	1.556
4th	0.9722	0.971	1.135
5th	0.7949	0.795	0.859
6th	-	0.674	0.686
Reverse	3.4545	3.5	3.394
Countershaft	-	-	0.906
Final Drive	4.2353	3.944	4.067

Capacities			
	1.5 DVCT	1.0 Turbo Auto	1.0 Turbo Manual
Engine Oil	4.1 L	4 L	
Coolant	5.4 L	5.8 L	
Transmission Oil	1.8 L	6.2 L	1.7 L
Brake Fluid		0.75 L	
Screenwash		4 L	
AC Refrigerant	520 +/- 20 g	520 +/- 20 g	520 +/- 20 g
AC Lubricant	140 +/- 10 ml	80 +/- 10 ml	80 +/- 10 ml

## Instrumentation

The primary function of the instrument pack (IPK) is to provide the driver with continuously updated information about the vehicle and to indicate faults as they occur-usually by illuminating a warning lamp.

The IPK is an intelligent unit controlled by a microprocessor and has an EEPROM which stores updated information in this non volatile memory.

The IPK is designed to display information quickly and unambiguously. For this reason, the IPK has a central and prominent position within the driver's field of vision, requiring only the slightest eye adjustment to access the data displayed.

The MG ZS 20MY offers 2 types of instrument pack, an analogue dial/partial digital display or a full virtual digital display.

## Description

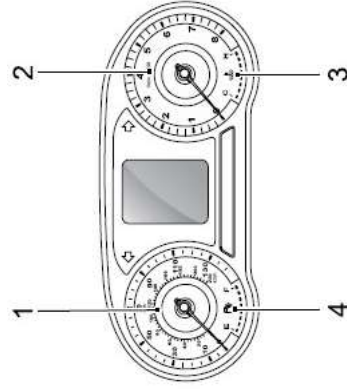
The instrument pack is secured to the fascia by two screws and connected to the vehicle body harness.

Instrument packs are self-contained and have no serviceable parts.

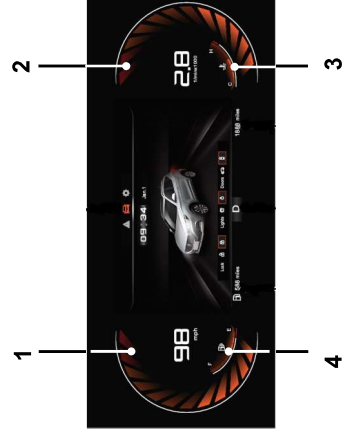
The main function of the instrument pack is to provide information concerning the status of various vehicle parameters such as road speed, engine temperature and fuel level, and alert the driver of problems by means of warning indicators.

## Communication Bus Networks

Apart from the fuel tank level sensor, oil pressure switch (1.5 only), manual handbrake switch, trip computer switch, steering wheel switches and auto gear shifter the instrument pack receives all its information via the HS CAN Bus.



1. Speedometer
2. Tachometer
3. Temperature Gauge
4. Fuel Gauge





### **Tachometer**

#### **Analogue**

The tachometer needle indicates engine speed on a dial marked in revolutions per minute - RPM (x1000).

The upper end of the scale features a red sector to warn the driver if the engine speed is high enough to risk potential engine damage if it is maintained at this high level for a sustained period.

#### **Virtual**

The engine speed is shown as a digital figure.

A partially illuminated segmented arc makes up the outer circumference of the virtual dial, the brightness of each segment increases or decreases in size depending on the engine speed.

The instrument packs receive the engine speed data from the ECM via CAN when the ignition is on.

### **Speedometer**

#### **Analogue**

The speedometer needle indicates vehicle speed on a dial marked in miles per hour (MPH with sub indicators in kilometres per hour (KMH)).

The ABS/SCS modulator transmits a signal to calculate the wheel speed.

#### **Virtual**

The vehicle speed is shown as a digital figure.

A partially illuminated segmented arc makes up the outer circumference of the virtual dial, the brightness of each segment increases or decreases in size depending on the vehicle speed.

The instrument packs receive the vehicle speed data from the ABS/SCS via CAN when the ignition is on.

### **Temperature Gauge**

The instrument pack receives the temperature signal from the HS CAN via EMS.

Temperature is indicated to the driver via an 8 segment arced gauge, on the virtual pack each segment is illuminated at a low intensity until it is 'reached' the intensity then increases.



### Fuel Gauge

Fuel level is indicated to the driver via an 8 segment arced gauge, on the virtual pack each segment is illuminated at a low intensity until it is 'reached' the intensity then increases.

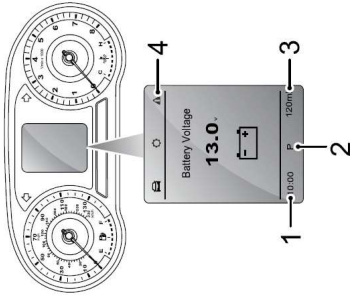
The gauge is connected to the fuel level sensor via hard wire, when the ignition switch is on, the fuel gauge starts to operate.

A low fuel warning level occurs when only one bar remains illuminated.

A low fuel warning light is located below the message centre will illuminate, if the fuel level continues to fall and a critical level is reached the lamp will flash in unison with the final bar and is accompanied by an audible warning.

### IPK Message Centre/Trip Computer

#### Analogue



The IPK message centre displays:

1. Digital clock
2. Gear Display/Gear Shift Indicator
3. Odometer
4. Vehicle (General) Information Selection

#### Digital Clock

Displays the current time in digital form.

#### Gear Display

With the ignition in position II, the current gear position will be displayed.

- P, R, N, D, I, 2, 3, 4, 5, 6 or S

If 'EP' is displayed it indicates a fault with the automatic transmission.



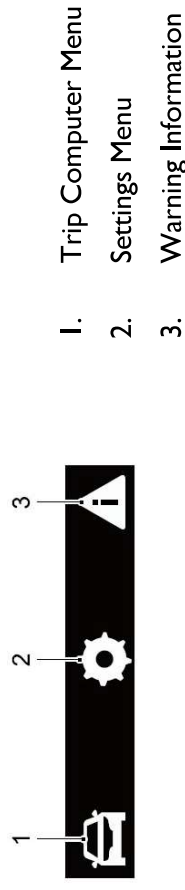
When a gear change is advised, an up or down arrow will be displayed to the right of the gear position.

### **Odometer**

Displays the total distance travelled by the car.

### **Vehicle (General) Information Selection**

The vehicle information selection display contains the following options



Selection is made using the RH steering wheel control switches.

### **Trip Computer**

The options within the Trip Computer include:

Current Speed, Range to Empty, Current Journey, Accumulated Total, Instantaneous Fuel Economy, Battery Voltage and Tyre Pressures

### **Settings Menu**

The options within the Settings menu include:

Brightness, Speed Warning and Next Service

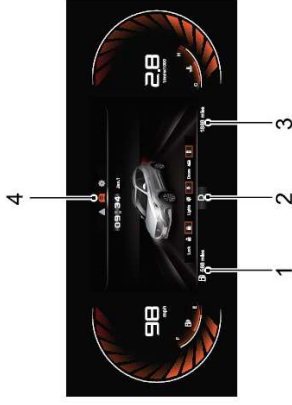
### **Warning Information**

This area will display any Operating Instructions, System State Instructions and System Malfunction Alerts





## Virtual



1. Range to Empty
2. Gear Display and Shift Indication
3. Total mileage
4. Vehicle (General) Information selection

### Range to Empty

Estimated distance the vehicle can travel before the fuel gauge reads empty.

### Gear Display and Shift Indication

With the ignition in position II, the current gear position will be displayed.

- P, R, N, D, I, 2, 3, 4, 5, 6 or S

If 'EP' is displayed it indicates a fault with the automatic transmission.

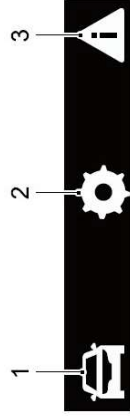
When a gear change is advised, an up or down arrow will be displayed to the right of the gear position.

### Total Mileage

Displays the total distance travelled by the car.

### Vehicle (General) Information Selection

The vehicle information selection display contains the following options



1. Trip Computer Menu
2. Settings Menu
3. Warning Information



Selection is made using the RH steering wheel control switches.

### **Trip Computer**

The options within the Trip Computer include:

Default (displays status of locks, lights and doors) Current Journey, Accumulated Total, Battery Voltage and Tyre Pressures

### **Settings Menu**

The options within the Settings menu include:

Brightness, Speed Warning and Next Service

### **Warning Information**

This area will display any Operating Instructions, System State Instructions and System Malfunction Alerts

### **Unique or New Warning Lights**

#### **Rear Seat Belt Fastened Status**



The MG ZS 20MY is equipped with rear seat belt warnings to remind the driver to ensure any rear seat passengers have fastened their seat belts. The dedicated warning lamp consists of the 3 sections, 1 for each rear seat position, it will illuminate red on every ignition cycle and remain illuminated until a pre-set speed is reached and after a pre-set time period. If all 3 rear seat belts are fastened this lamp will extinguish immediately. When each individual rear seat belt is fastened the colour of that particular seat belt warning lamp will change from red to grey, the other seat positions will remain illuminated red, all 3 seat belt warning lamps will extinguish after the pre-set speed is reached and the pre-set time has been surpassed.

#### **Electronic Parking Brake (EPB)/Automatic Parking Status Indicator Lamp - Red/Green**



If this lamp illuminates red, it indicates the electronic parking brake is enabled or in the process of dynamic braking. When it flashes red, it indicates the electronic parking brake has failed. When the auto hold system is operating to assist the driver, this lamp illuminates green.

#### **Electronic Parking Brake (EPB) System Malfunction Indicator Lamp - Yellow**



If an electronic parking brake system failure is detected or the system is under diagnosis, the indicator lamp will illuminate.



### Hill Descent Control



Operating the HDC switch will activate the function, the system will enter the stand by mode and the warning lamp illuminates green, the lamp will extinguish when the system is turned off. If the vehicle is under the control of HDC the green warning lamp will flash.

If the HDC system detects a fault or fails, the warning lamp illuminates yellow.

### Electric Power Steering System (EPS)/ Electronic Steering Column Lock (ESCL) Warning Lamp - Yellow/Red \*



The warning lamp is used to indicate electric power assisted steering failure or electronic steering column lock failure. When this lamp illuminates yellow, it indicates the electric power assisted steering system has a general failure and the performance is reduced. The car should be stopped as soon as safety permits.

When this lamp illuminates red, it indicates that the EPS has a failure relevant to the steering angle sensor.

When this lamp illuminates red and flashes, it indicates the electric power assisted steering system has a severe failure and heavy steering.

When the lamp illuminates yellow and flashes, it indicates the electric steering column lock has a failure. The car should be stopped as soon as safety permits, and the engine switched OFF.

If this lamp extinguishes after flashing for a while, it indicates that the steering wheel is locked, the owner should attempt to rotate the steering wheel to remove any adverse loads.

### System Fault Messages Indicator - Yellow \*



This indicator is used to alert the driver to the fact that there is a warning stored in the vehicle IPK system.

### Particulate Filter Warning Lamp - Yellow \*



When this lamp illuminates yellow, it indicates that the particulate filter requires regeneration. The vehicle must be driven at speeds above 50mph until the light is no longer illuminated, and then normal usage can be resumed.

**Note: During particulate filter regeneration the engine will run unevenly and at reduced power, this will cease after a successful regeneration.**

When this lamp flashes, it indicates that the particulate filter is full, the engine malfunction indicator lamp illuminates at the same time. Please note if the warning is ignored, the vehicle will enter a reduced performance mode and may subsequently be immobilised.



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### Personalisation



- 1 Radio/Music - Touch to enter the Radio/Music interface.
- 2 Navigation (only for high-line) - Touch to enter the Navigation interface.
- 3 HVAC Interface
- 4 Others (Scroll Bar)

Phone Touch to enter the Bluetooth Phone interface.

Car Touch to enter the Vehicle Settings interface.

Set up Touch to enter the Settings interface.

360 View \* Touch to enter the 360 View interface.

Apple CarPlay \* Touch to enter the Apple CarPlay interface.

Android Auto \* Touch to enter the Android Auto interface.

Pictures Touch to enter the Pictures interface.

Video Touch to enter the Video interface.

Display Off Touch to turn off the display; touch again to wake up the display.

\* Options



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### **Car**



#### **Driver Assist**

Switch the Rear Driver Assist systems on or off, choose between Blind Spot Detection, Lane Change Assist and Rear Cross Traffic Alert

#### **Comfort and Convenience**

##### **Follow Me Home**

After the ignition switch is turned off, pull the lighting stalk towards the steering wheel. This will enable the Follow Me Home function, dipped beam headlights and rear fog lamps will illuminate depending upon the vehicle configuration.

Options available are: On/Off

##### **Find My Car**

After the vehicle has been left in a locked condition for 2 minutes pressing the lock button again on the remote key will enable the Find My Car function. This function will identify the car by means of an audible and visual alert.

Pressing the Lock button on the handset again will suspend this operation. Pressing the Unlock button will cancel this operation.

Options available are: Lights/Lights and Horn

##### **Steering Wheel Button Function**

The function of the steering wheel “\*” button can be set as a shortcut key.

Options available: Carplay/Car/Home

##### **Driving Maintenance**

Switch Hill Descent Control On/Off and select the level of steering assistance (Urban, Normal or Dynamic)

##### **Factory Reset**

This area allows the resetting of the system to the original factory settings, option available:

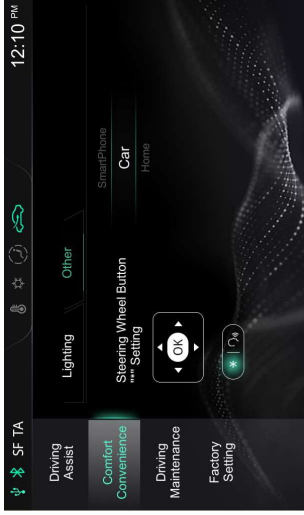
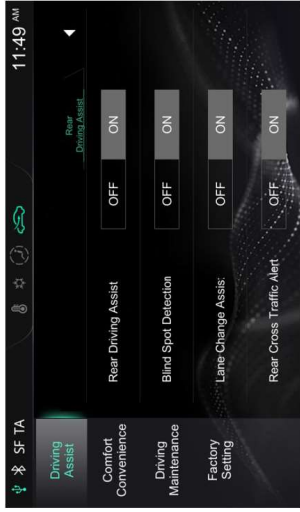
Restore Factory Settings

Selecting this option means the on-board entertainment system will be reset to its original settings and all data in the Vehicle Settings system will be deleted. Please use with caution.





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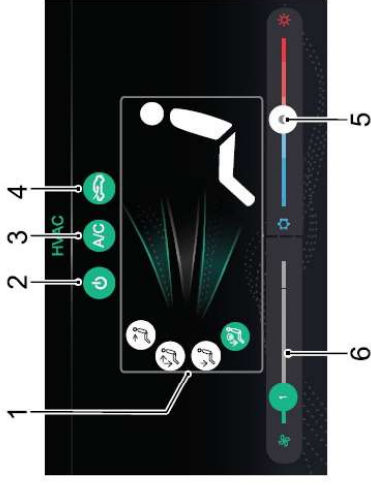




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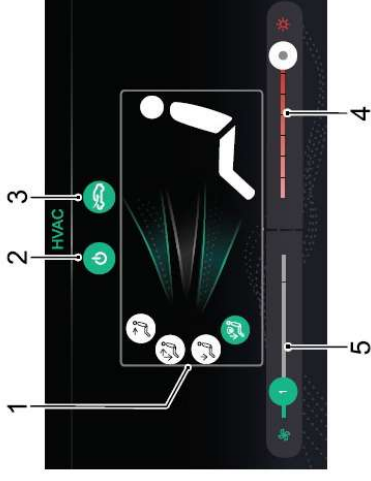


### HVAC Interface



#### With AC

- 1 Air Distribution Mode
- 2 System On/Off
- 3 A/C Cooling On/Off
- 4 Air Recirculation Mode
- 5 Temperature Control
- 6 Blower Speed Control

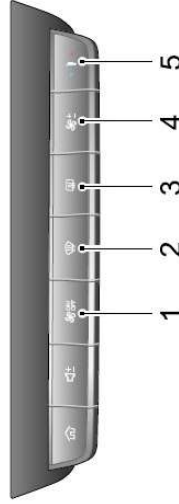


#### Without AC

- 1 Air Distribution Mode
- 2 System On/Off
- 3 Air Recirculation Mode
- 4 Temperature Control
- 5 Blower Speed Control



- 1 A/C Control Shortcut
- 2 Defrost/Demist Button
- 3 Heated Rear Window Button
- 4 Blower Speed Control Button
- 5 Temperature Control Button





## Settings



Audio: Volume Settings, EQ (Tone) Settings and Sound Stage

RDS/DAB: Specific radio functions setting

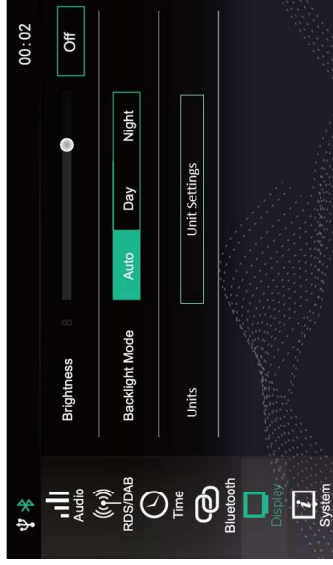
Time: Time and Date setting

Bluetooth: Pairing of Bluetooth device

System: Help files, Factory Reset and Navigation Updates

## Display

Allows the setting of Brightness, Backlight Mode and Units



Units allows the selection of: Distance - Miles/Km, Fuel Consumption - mpg, L/100km and Tyre Pressures - kPa, Bar, PSI