Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

2018 Chevrolet Silverado - 4WD Service and Repair Manual

Go to manual page

YOUR CURRENT VEHICLE

K71 Transmission Control Module: Programming and Setup

K71 Transmission Control Module: Programming and Setup (8L90 (M5U))

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: Diagnostic System Check - Vehicle
- Review the description of Strategy Based Diagnosis: Strategy Based Diagnosis

NOTE

Note

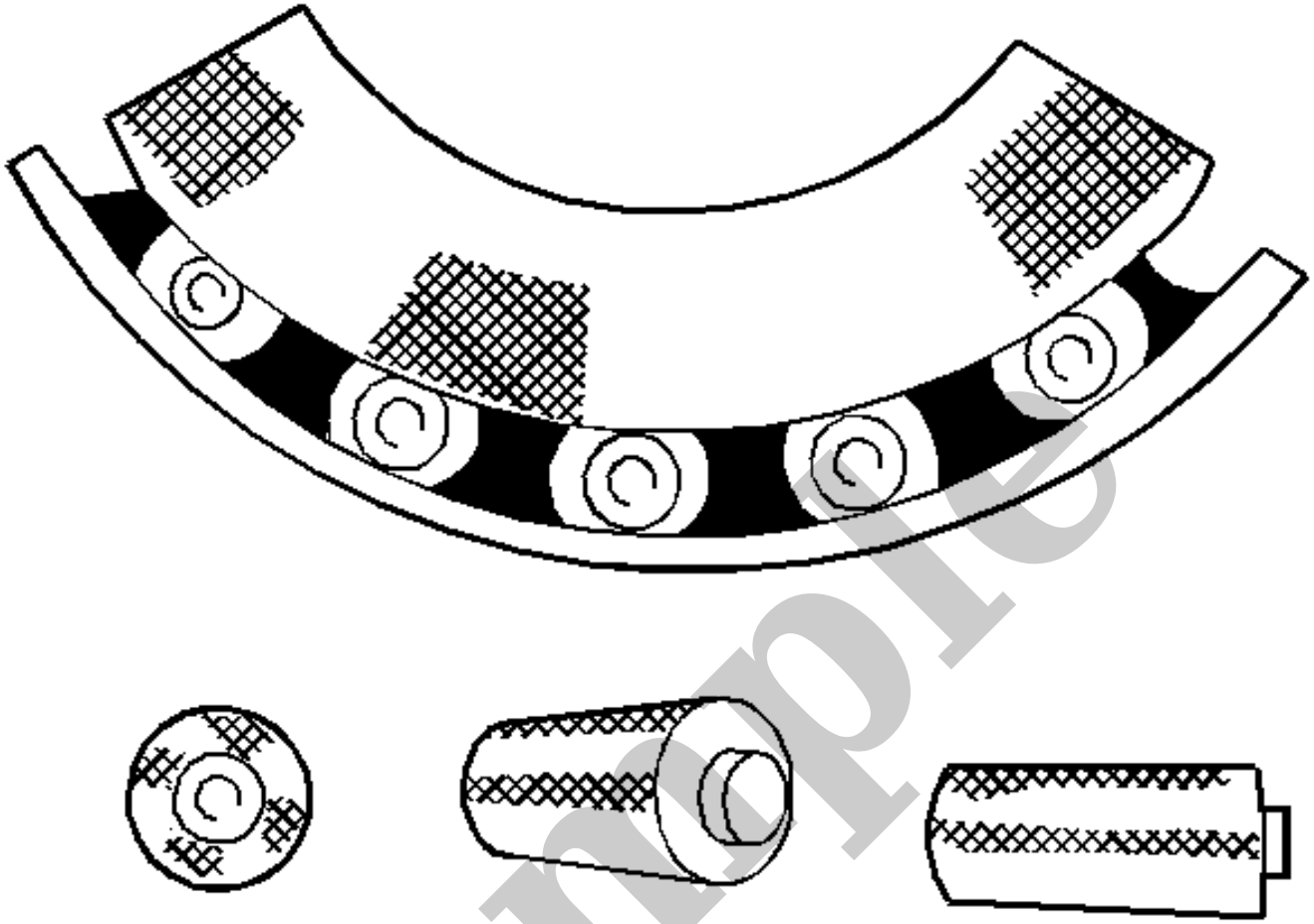
- Do NOT program a control module unless directed to by a service procedure or a service bulletin. If the control module is not properly configured with the correct calibration software, the control module will not control all of the vehicle features properly.
- Verify the programming tool is equipped with the latest software and is securely connected to the data link connector. If there is an interruption during programming, programming failure or control module damage may occur.
- Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. When required, install a battery maintainer or power supply that provides a steady and stable voltage. Do not use a battery charger, as charging voltage will often fluctuate when connected to the vehicle. This may interrupt programming. If a battery maintainer is not available, connect a fully charged 12 V jumper or booster pack disconnected from the AC voltage supply.
- Turn Off or disable systems that may put a load on the vehicle's battery. For example, interior lights, daytime running lights, HVAC, and radio.
- During the programming procedure, follow the Service Programming System (SPS) prompts for correct ignition switch position.

Parameter	System State	Expected Value	Description
Open Test Status			if the fuel pressure regulator circuit voltage is open.
Fuel Pressure Sensor	—	kPa / PSI	This parameter displays fuel rail pressure at the engine when the reading is referenced to atmosphere (gauge pressure).
Fuel Pump Enable Circuit High Voltage Test Status	—	OK	This parameter displays the state of the fuel pump enable circuit voltage. The parameter displays Malfunction if the fuel pump enable circuit voltage is shorted to voltage.
Fuel Pump Enable Circuit Low Voltage Test Status	—	OK	This parameter displays the state of the fuel pump enable circuit voltage. The parameter displays Malfunction if the fuel pump enable circuit voltage is shorted to grounded.
Fuel Pump Enable Circuit Open Test Status	—	OK	This parameter displays the state of the fuel pump enable circuit voltage. The parameter displays Malfunction if the fuel pump enable circuit voltage is open.
Fuel Pump Enabled Command	—	On	This parameter displays the commanded state of the Fuel Pump control circuit. The fuel pump should be On when the scan tool indicates the Fuel Pump Enable command is On. The fuel pump should be OFF when the scan tool indicates the Fuel Pump Enable +-*+Command is Off.
Fuel Pump Trim	Engine Running	0–4 %	This parameter displays the adjustments for the fuel pump duty cycle control. This is calculated by comparing the estimated fuel rail pressure to the desired fuel rail pressure. If the short term fuel pump trim consistently deviates from 0, the long term fuel pump trim is adjusted accordingly.
Fuel Rail Pressure Sensor	—	Volts	This parameter displays the fuel rail pressure analog input as a percentage of its reference voltage.
Fuel System Monitor Complete	—	Yes/No	This parameter displays the enable and completion status during the current driving / monitoring cycle of each continuous legislated emission related monitor and non-continuous legislated emission related monitor.
Fuel System Monitor Complete This Ignition Cycle	—	Yes/No	This parameter displays the enable and completion status during the current driving / monitoring cycle of each continuous legislated emission related monitor and non-continuous legislated emission related monitor.
Fuel System Monitor Enabled	—	Yes/No	This parameter displays the enable and completion status during the current driving / monitoring cycle of each

Parameter	System State	Expected Value
Transmission Range Sensor 1	P	13%
	R	47%
	N	61%
	D	75%
	L	86%
Transmission Range Sensor 2	P	87%
	R	53%
	N	39%
	D	25%
	L	14%
Vehicle Speed	—	Varies

K71 Transmission Control Module—Scan Tool Control Function

Control Function	Description
High Side Driver 1–2	Overrides the state of the High Side Driver Output
Shift Transmission Gear	Overrides the commanded gear output
Transmission Control Solenoid Valve 1–8	Overrides the state of the Transmission Control Solenoid Valve —On or Off
Transmission Control Solenoid Valve 1–8 Current	Overrides the current of the Transmission Control Solenoid Valve —0–1.2 A



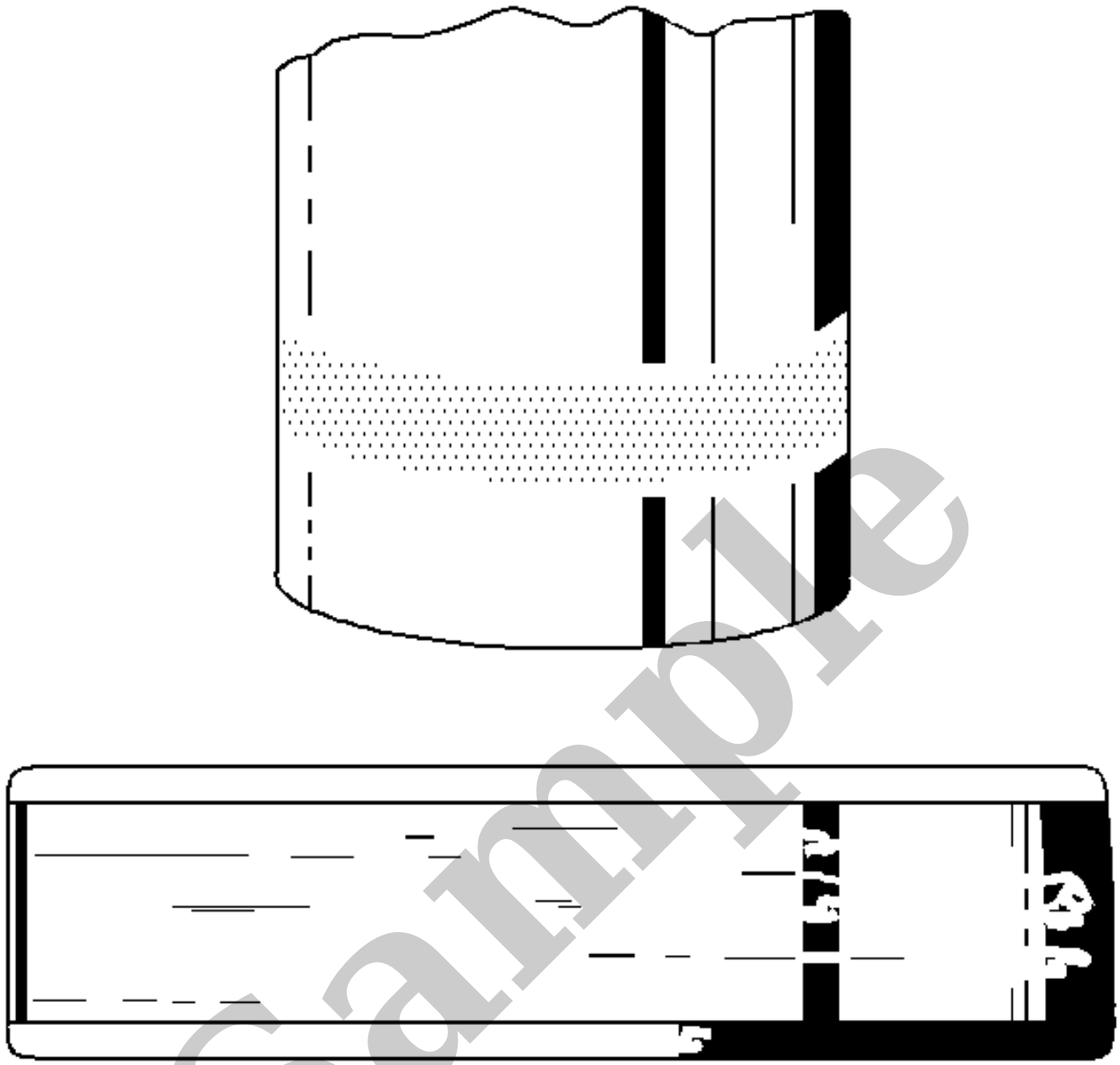
Pattern on the roller ends caused by fine abrasives. Clean all of the parts and the housings. Check the seals and the bearings. Replace any leaky, rough, or noisy bearings.

Galling

7. Install the boot onto the transfer case output shaft until the boot snaps into the groove on the output shaft.

8. Using the **J-43218** ***clamp pliers*** to crimp both clamps.

9. Lower the vehicle.



Corrosion set up by a small relative movement of parts with no lubrication. Replace the bearing. Clean all the relative parts. Check the seals. Check for proper fit and lubrication. Replace the shaft if damaged.

Smears

Do not disconnect the main vehicle battery or remove the OnStar® fuse with the ignition key in any position other than OFF. Disconnecting power to the OnStar® module in any way while the ignition is ON or with retained accessory power activated may cause activation of the OnStar® Back-Up Battery. This action is per design as the back-up battery is designed to provide power to the telematics communication interface control module so an emergency notification call can be made after an event where the main battery is disabled. Once the Back-Up Battery is activated it will stay on until the power is restored back to the telematics communication interface control module. The telematics communication interface control module naturally chooses the main supply voltage as it's default supply, but if the main supply is removed or lost for any reason the OnStar® module will use the Back-Up Battery as a power supply as long as the default supply can not be detected. The back-up battery is not rechargeable and once discharged below 9.5 volts the back-up battery must be replaced.

Certain OnStar® equipped vehicles may also be equipped with a back-up battery. The back-up battery is a non-rechargeable, lithium battery intended to provide an auxiliary power source for the telematics communication interface control module in the event where power from the main vehicle battery is lost.

The back-up battery is intended to have a limited life span of approximately 4 years and is designed to maintain an open circuit voltage between 16 V and 9 V throughout this period. This allows the battery to power the basic functions of the telematics communication interface control module for least one 200 second (5 minute) call at the end of the 4 year span, should the main vehicle battery be lost. In the case of a vehicle losing vehicle battery power, OnStar will switch over to the backup battery based on an internal algorithm. It will look for an air-bag deploy, or near-deploy, messages from the SDM. If there are no messages the OnStar module will stay wake for a few minutes longer and monitor the buttons in the mirror. If not pressed, the modules will power down and shut off completely.

The back-up battery is connected to the telematics communication interface control module through the back-up battery positive voltage circuit and back-up battery ground circuit and is protected from a short circuit by means of an internal fuse. In the event the back-up battery, battery positive voltage circuit is shorted to the back-up battery ground circuit or chassis ground, the fuse will open and render the back-up battery permanently inoperable. The status of the back-up battery and its associated wiring is monitored by the telematics communication interface control module.

WiFi Hotspot

The telematics communication interface control module acts as a Wireless Local Area Network (WLAN) WiFi hotspot router and uses direct 4G LTE connectivity to the internet. It has the ability to connect up to 7 devices at one time. A data plan is required and when purchased, a security default password is established. There are several ways to change the SSID or password, by placing a call to the OnStar Call Center, by using the Gen 10 mobile app or through the scan tool.

The system utilizes a secure autoconnect feature between the telematics communication interface control module and the radio/HMI. No user interaction is required, it is always available and ready to connect to a

2. Test for less than 2 Ω in the ground circuit end to end.
    - If 2 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 2 Ω, repair the open/high resistance in the ground connection.
- **If less than 10 Ω.**

4. Verify that a test lamp illuminates between the B+ circuit terminal 10 and ground.
    - **If the test lamp does not illuminate.**

      Repair the open/high resistance in the circuit
    - **If the test lamp illuminates.**
5. Ignition ON, rear seat entertainment system ON.
6. Test for 5 V or greater between the control circuit terminal 9 and ground.
    - **If less than 5 V.**

      Repair the open/high resistance in the circuit
    - **If 5 V or greater.**
7. Ignition OFF.
8. Verify the LVDS cable is properly connected at the P22 Video Display, A33 Media Disc Player and all in-line connectors, and there is no damage to the cable or connections.
    - **If connection problems or cable damage is noted.**

      Perform the appropriate repair or replacement to correct any issues.
    - **If no connection problems or cable damage is noted.**
9. Connect the X2 harness connector at the P22 Video Display.
10. **NOTE**

    Note

    In the following steps, the test tools are used to create a jumper for the LVDS cable from the operating display to the inoperative display.

    Disconnect the X1 harness connector at the operating P22 Video Display.
11. Connect the EL-50334-4 Type A female to Mini B female Adapter to the harness of the operating P22 Video Display. Connect the EL-50334-14 Infotainment Test Cable to the adapter.