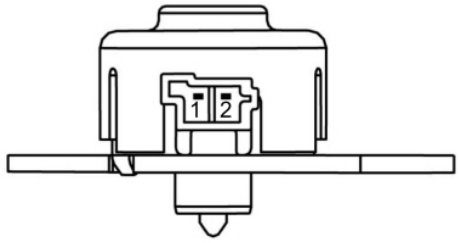
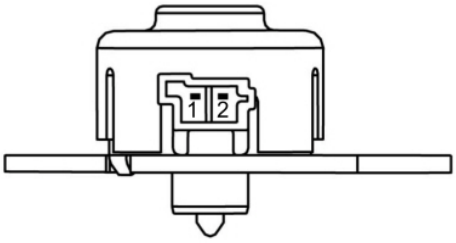
Your Ultimate Source for OEM Repair Manuals

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.

2003 FORD Explorer Sport Trac OEM Service and Repair Workshop Manual

Go to manual page

 E345026 Park lock pawl solenoid component side pin 1	Ω	 E345026 Park lock pawl solenoid component side pin 2

Is the resistance between 17 and 27 ohms?

Yes	GO to H13

No	INSTALL a new park lock pawl solenoid. REFER to: Park Lock Pawl Solenoid (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).

H13 CHECK THE PARK LOCK PAWL SOLENOID FOR A SHORT TO GROUND

- Measure:

Positive Lead	Measurement / Action	Negative Lead

	For DTC (diagnostic trouble code) P2888, P2889 and/or P288A, INSPECT and CONNECT all electrical connectors, CLEAR the DTC (diagnostic trouble code) , then CARRY OUT the KOEO (key on, engine off) PCM (powertrain control module) self-test. If DTC (diagnostic trouble code) P2888, P2889 and/or P288A returns,  Guided Routine available in the on-line Workshop Manual. After programming the new PCM (powertrain control module) , CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, General Procedures). For DTC (diagnostic trouble code) P07E4, P07E6, and/or P288B, RESOLVE the park engagement symptom. REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).
No	INSTALL a new park lock pawl solenoid. REFER to: Park Lock Pawl Solenoid (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).

PINPOINT TEST I : OSS, TSS, ISSA, ISSB SENSOR (PERFORMANCE)

Refer to Wiring Diagrams Cell 30for schematic and connector information.
Normal Operation and Fault Conditions These diagnostic trouble codes (DTCs) indicate a non-electrical fault with one of the transmission speed sensors. The PCM (powertrain control module) determined the sensor and circuit are electrically okay, but detected a sensor drop out, a noise spike, or a mismatch in sensor speed readings for the gear commanded. This could be caused by too large of a sensor air gap, an undetected clutch fault, internal transmission failure or a sensor fault. **TSS Sensor** The TSS (turbine shaft speed) sensor is a Hall-effect type sensor that provides a signal to the PCM (powertrain control module)

PCM (powertrain control module) P0792:00	Intermediate Shaft Speed Sensor 'A' Circuit Range/Performance: No Sub Type Information	Intermediate shaft speed sensor A rationality fault. No circuit fault is detected, but the sensor fails for signal drop out, noise spikes, and/or does not match other sensor speeds for the current gear state. Common causes of this DTC (diagnostic trouble code) are sensor air gap too large, an internal sensor fault or an undetected clutch fault.
PCM (powertrain control module) P2746:00	Intermediate Shaft Speed Sensor 'B' Circuit Range/Performance: No Sub Type Information	Intermediate shaft speed sensor B rationality fault. No circuit fault is detected, but the sensor fails for signal drop out, noise spikes, and/or does not match other sensor speeds for the current gear state. Common causes of this DTC (diagnostic trouble code) are sensor air gap too large, an internal sensor fault or an undetected clutch fault.

Possible Sources

- Connectors damaged or pushed-out terminals, corrosion, loose wires and missing or damaged seals
- Loose sensor or incorrect air gap
- speed sensor fault
- Undetected clutch fault

I1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the PCM (powertrain control module) self-test.

Are any gear ratio, clutch fault or speed sensor circuit fault diagnostic trouble codes (DTCs) present?

Yes	RESOLVE any gear ratio, clutch fault or speed sensor circuit fault diagnostic trouble codes (DTCs) first.

No	For DTC P0716, GO to I2 For DTC P0721, GO to I3 For DTC P0792, GO to I4 For DTC P2746, GO to I5

I2 CHECK THE TSS SENSOR

- Using a diagnostic scan tool, clear all diagnostic trouble codes (DTCs) from the PCM (powertrain control module) .

- Using a diagnostic scan tool, clear all diagnostic trouble codes (DTCs) from the PCM (powertrain control module) .
- **NOTE**

  The PCM (powertrain control module) will disable all gears except 7th and reverse if it detects a speed sensor fault. This is a failsafe action that does not necessarily indicate an internal transmission fault.

  Road test the vehicle. Pay attention for any observable symptoms that could indicate a clutch fault or internal transmission failure.
- Ignition OFF.
- Road test the vehicle a second time.
- Using a diagnostic scan tool, retrieve all continuous memory diagnostic trouble codes (CMDTCs) from the PCM (powertrain control module) .

Is DTC (diagnostic trouble code) P0721 present?

Yes	If any gear ratio, clutch fault or speed sensor circuit fault diagnostic trouble codes (DTCs) are now present, RESOLVE those first. If any observable symptoms that indicate a clutch fault or internal transmission failure are present, RESOLVE those next. REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing). If DTC (diagnostic trouble code) P0721 returns alone, GO to Pinpoint Test D If no circuit faults are found, REMOVE the transmission fluid auxiliary pump and INSPECT the OSS (output shaft speed) sensor. Make sure it is properly mounted and free of damage. CHECK the vehicle wiring harness for any possible sources of RFI (radio frequency interference) . REPAIR or INSTALL new components as necessary. REFER to: Output Shaft Speed (OSS) Sensor (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).

No	An OSS (output shaft speed) sensor fault is not present at this time. If any observable symptoms are present, REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).

- Using a diagnostic scan tool, clear all diagnostic trouble codes (DTCs) from the PCM (powertrain control module) .
- **NOTE**

  The PCM (powertrain control module) will disable all gears except 7th and reverse if it detects a speed sensor fault. This is a failsafe action that does not necessarily indicate an internal transmission fault.

  Road test the vehicle. Pay attention for any observable symptoms that could indicate a clutch fault or internal transmission failure.
- Ignition OFF.
- Road test the vehicle a second time.
- Using a diagnostic scan tool, retrieve all continuous memory diagnostic trouble codes (CMDTCs) from the PCM (powertrain control module) .

Is DTC (diagnostic trouble code) P0792 present?

Yes	If any gear ratio, clutch fault or speed sensor circuit fault diagnostic trouble codes (DTCs) are now present, RESOLVE those first. If any observable symptoms that indicate a clutch fault or internal transmission failure are present, RESOLVE those next. REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing). If DTC (diagnostic trouble code) P0792 returns alone, GO to Pinpoint Test D If no circuit faults are found, REMOVE the main control valve body and INSPECT the intermediate shaft speed A (ISSA) sensor. Make sure it is properly mounted and free of damage. CHECK the vehicle wiring harness for any possible sources of RFI (radio frequency interference) . REPAIR or INSTALL new components as necessary. REFER to: Intermediate Speed Sensor A (ISSA) (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).

No	An intermediate shaft speed A (ISSA) sensor fault is not present at this time. If any observable symptoms are present, REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).

- Using a diagnostic scan tool, clear all diagnostic trouble codes (DTCs) from the PCM (powertrain control module) .
- **NOTE**

  The PCM (powertrain control module) will disable all gears except 7th and reverse if it detects a speed sensor fault. This is a failsafe action that does not necessarily indicate an internal transmission fault.

  Road test the vehicle. Pay attention for any observable symptoms that could indicate a clutch fault or internal transmission failure.
- Ignition OFF.
- Road test the vehicle a second time.
- Using a diagnostic scan tool, retrieve all continuous memory diagnostic trouble codes (CMDTCs) from the PCM (powertrain control module) .

Is DTC (diagnostic trouble code) P2746 present?

Yes	If any gear ratio, clutch fault or speed sensor circuit fault diagnostic trouble codes (DTCs) are now present, RESOLVE those first. If any observable symptoms that indicate a clutch fault or internal transmission failure are present, RESOLVE those next. REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing). If DTC (diagnostic trouble code) P2746 returns alone, GO to Pinpoint Test D If no circuit faults are found, REMOVE the main control valve body and INSPECT the intermediate shaft speed B (ISSB) sensor. Make sure it is properly mounted and free of damage. CHECK the vehicle wiring harness for any possible sources of RFI (radio frequency interference) . REPAIR or INSTALL new components as necessary. REFER to: Intermediate Speed Sensor B (ISSB) (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).

No	An intermediate shaft speed B (ISSB) sensor fault is not present at this time. If any observable symptoms are present, REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).

	(307-02A Transmission Cooling - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing).

PINPOINT TEST K : P0702, P0882, P0883, P0884

Refer to Wiring Diagrams Cell 25for schematic and connector information.

Normal Operation and Fault Conditions The transmission control system is an integrated part of the PCM (powertrain control module) . If the PCM (powertrain control module) supply voltage drops below or rises above operating voltage, the transmission control system may not operate properly. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0702:00	Transmission Control System Electrical: No Sub Type Information	This DTC (diagnostic trouble code) indicates the PCM (powertrain control module) detected a supply voltage either above or below threshold.
PCM (powertrain control module) P0882:00	TCM Power Input Signal Low: No Sub Type Information	This DTC (diagnostic trouble code) indicates the PCM (powertrain control module) detected a supply voltage of less than 9 volts.
PCM (powertrain control module) P0883:00	TCM Power Input Signal High: No Sub Type Information	This DTC (diagnostic trouble code) indicates the PCM (powertrain control module) detected a supply voltage of greater than 21 volts.
PCM (powertrain control module) P0884:00	TCM Power Input Signal Intermittent: No Sub Type Information	This DTC (diagnostic trouble code) indicates the PCM (powertrain control module) was unable to store fault data due to an unexpected loss of power.

Possible Sources

- Charging system concern
- Connectors damaged or pushed-out terminals, corrosion, loose wires and missing or damaged seals
- Low voltage to the PCM (powertrain control module)

K1 CHECK THE PCM (POWERTRAIN CONTROL MODULE) FOR DIAGNOSTIC TROUBLE CODES (DTCS)

No	If the PCM (powertrain control module) does not communicate with the scan tool, REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing). Otherwise, the system is operating properly at this time. The DTC (diagnostic trouble code) may have been set previously during battery charging or while jump starting the vehicle.

PINPOINT TEST L : P0729

Normal Operation and Fault Conditions

The PCM (powertrain control module) monitors clutch applications for all gears. It sets a DTC (diagnostic trouble code) if it detects a ratio error but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio diagnostic trouble codes (DTCs) are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for a line pressure or pump pressure concern.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0729:00	Gear 6 Incorrect Ratio: No Sub Type Information	This DTC (diagnostic trouble code) indicates a gear ratio error either in or while shifting to 6th gear. The fault did not last long enough to set a more specific DTC (diagnostic trouble code) . The failsafe logic disables 6th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- D clutch stuck off
- C clutch stuck on
- A clutch slipping
- E clutch slipping
- F clutch slipping

L1 CHECK THE PCM (POWERTRAIN CONTROL MODULE) FOR DTC (DIAGNOSTIC TROUBLE CODE) P0729

(DTCs) are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for a line pressure or pump pressure concern.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0731:00	Gear 1 Incorrect Ratio: No Sub Type Information	This DTC (diagnostic trouble code) indicates a gear ratio error either in or while shifting to 1st gear. The fault did not last long enough to set a more specific DTC (diagnostic trouble code) . The failsafe logic disables 1st gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch stuck off or slipping
- D clutch stuck off or slipping
- E clutch stuck off or slipping
- Low one-way clutch slipping or damaged

M1 CHECK THE PCM (POWERTRAIN CONTROL MODULE) FOR DTC (DIAGNOSTIC TROUBLE CODE) P0731

- Ignition ON.
- Using a diagnostic scan tool, clear all diagnostic trouble codes (DTCs) from the PCM (powertrain control module) .
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all continuous memory diagnostic trouble codes (CMDTCs) from the PCM (powertrain control module) .

Is DTC (diagnostic trouble code) P0731 present in the PCM (powertrain control module) ?

Yes	Check the A clutch for a does not apply or a slipping condition. REFER to: A Clutch (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing). Check the D clutch for a does not apply or a slipping condition. REFER to: D Clutch (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing). Check the E clutch for a does not apply or a slipping.