

ATTENTION:  
GENERAL MANAGER  
CLAIMS PERSONNEL

PARTS MANAGER  
SERVICE MANAGER

IMPORTANT - All Service Personnel Should Read and Initial




## SERVICE BULLETIN

**APPLICABILITY:** 1999~2004MY Subaru Vehicles  
**SUBJECT:** Service Manual Corrections

**NUMBER:** 18-75-04  
**DATE:** 03/15/04

### INTRODUCTION

Place a REVISED label on the appropriate pages of the noted effected Service Manuals and update the appropriate Service Manual Correction Binder(s) with the following pages:

YEAR	MODEL	BOOK/VOL#	MSA#	SECTION	PAGE	REFERENCE
2000	Impreza	Sect. 4	MSA5T0013A	2-7	152	[T10Q0]
	Impreza	Sect. 4	MSA5T0013A	2-7	155	[T10R1]
	Impreza	Sect. 4	MSA5T0013A	2-7	156	[T10S0]
	Impreza	Sect. 4	MSA5T0013A	2-7	398	[T11P0]
	Impreza	Sect. 4	MSA5T0013A	2-7	401	[T11Q1]
	Impreza	Sect. 4	MSA5T0013A	2-7	402	[T11R0]
2001	Impreza	Sect. 3	MSA5T0112A	--	EN-140	--
	Impreza	Sect. 3	MSA5T0112A	--	EN-142	--
	Impreza	Sect. 3	MSA5T0112A	--	EN-144	--
	Impreza	Sect. 3	MSA5T0112A	--	EN-348	--
	Impreza	Sect. 3	MSA5T0112A	--	EN-350	--
	Impreza	Sect. 3	MSA5T0112A	--	EN-352	--
	Impreza	Sect. 4	MSA5T0113A	--	MT-65	--
	Impreza	Sect. 4	MSA5T0113A	--	MT-66	--
	Legacy	Sect. 4	MSA5T0104A	--	MT-65	--
	Legacy	Sect. 4	MSA5T0104A	--	MT-66	--
2002	Forester	Sect. 5	MSA5T0224A	--	MT-78	--
	Forester	Sect. 5	MSA5T0224A	--	MT-79	--
	Impreza	Sect. 4	MSA5T0213A	--	MT-82	--
	Legacy	Sect. 4	MSA5T0204A	--	MT-80	--
	Legacy	Sect. 4	MSA5T0204A	--	MT-81	--
2003	Impreza	Sect. 4	MSA5T0313A	--	MT-84	--
	Legacy	Sect. 4	MSA5T0304A	--	MT-79	--
2004	Legacy	Sect. 6	MSA5T0405A	--	5MT-84	--
	Legacy	Sect. 6	MSA5T0405A	--	5MT-85	--
	Impreza	Sect. 6	MSA5T0415A	--	5MT-81	--



**CAUTION: VEHICLE SERVICING PERFORMED BY UNTRAINED PERSONS COULD RESULT IN SERIOUS INJURY TO THOSE PERSONS OR TO OTHERS.**

Subaru Service Bulletins are intended for use by professional technicians ONLY. They are written to inform those technicians of conditions that may occur in some vehicles, or to provide information that could assist in the proper servicing of the vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do the job correctly and safely. If a condition is described, DO NOT assume that this Service Bulletin applies to your vehicle, or that your vehicle will have that condition.



**Q: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION —**

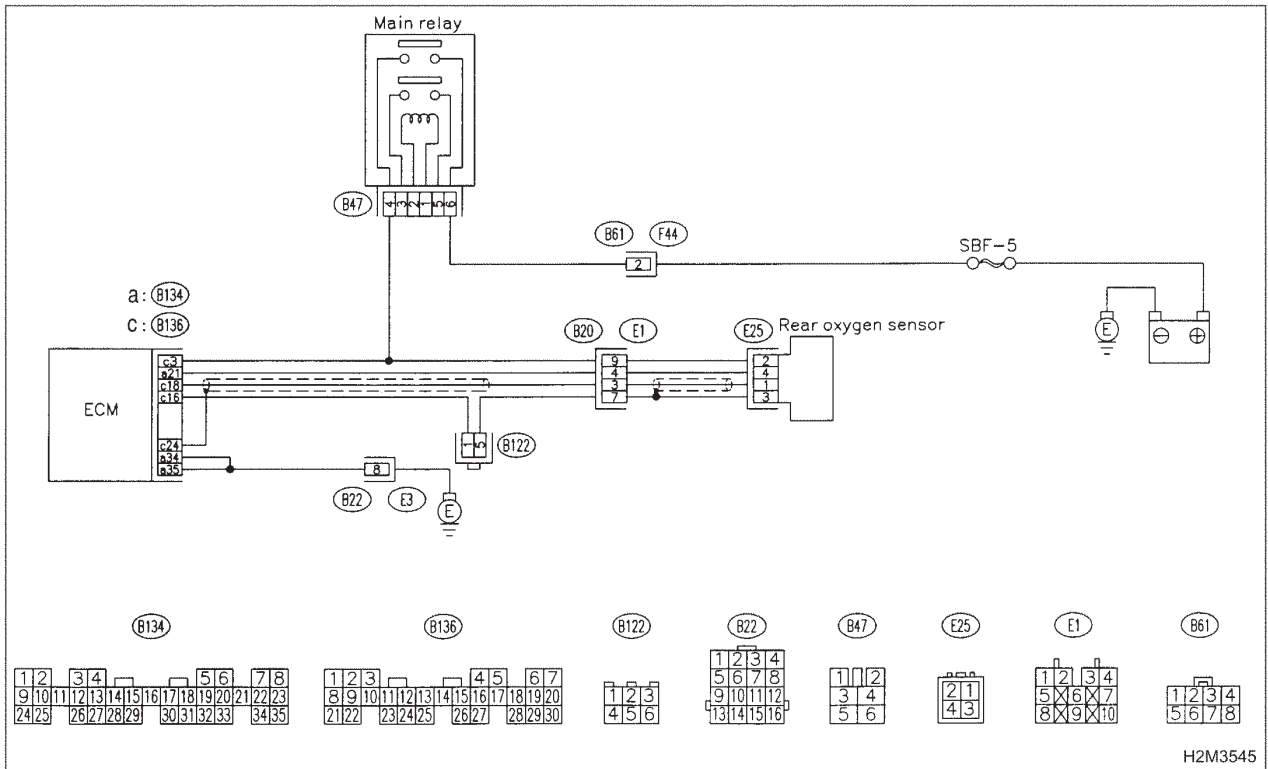
**DTC DETECTING CONDITION:**

Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

**WIRING DIAGRAM:**



**10Q1 : CHECK ANY OTHER DTC ON DISPLAY.**

**10Q2 : CHECK FAILURE CAUSE OF P1130 OR P1131.**

**CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?

Inspect DTC P1130 or P1131 using "10. Diagnostics Chart with Trouble Code for 2200 cc Models". <Ref. to 2-7 [T10A0].>

**YES** : Go to step 10Q2.

**CHECK** : Is the failure cause of P1130 or P1131 in the fuel system?

**NO** : Go to step 10Q3.

**YES** : Check fuel system.

**NOTE:**  
In this case, it is not necessary to inspect DTC P0136.

**NO** : Go to step 10Q3.

**R: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —**

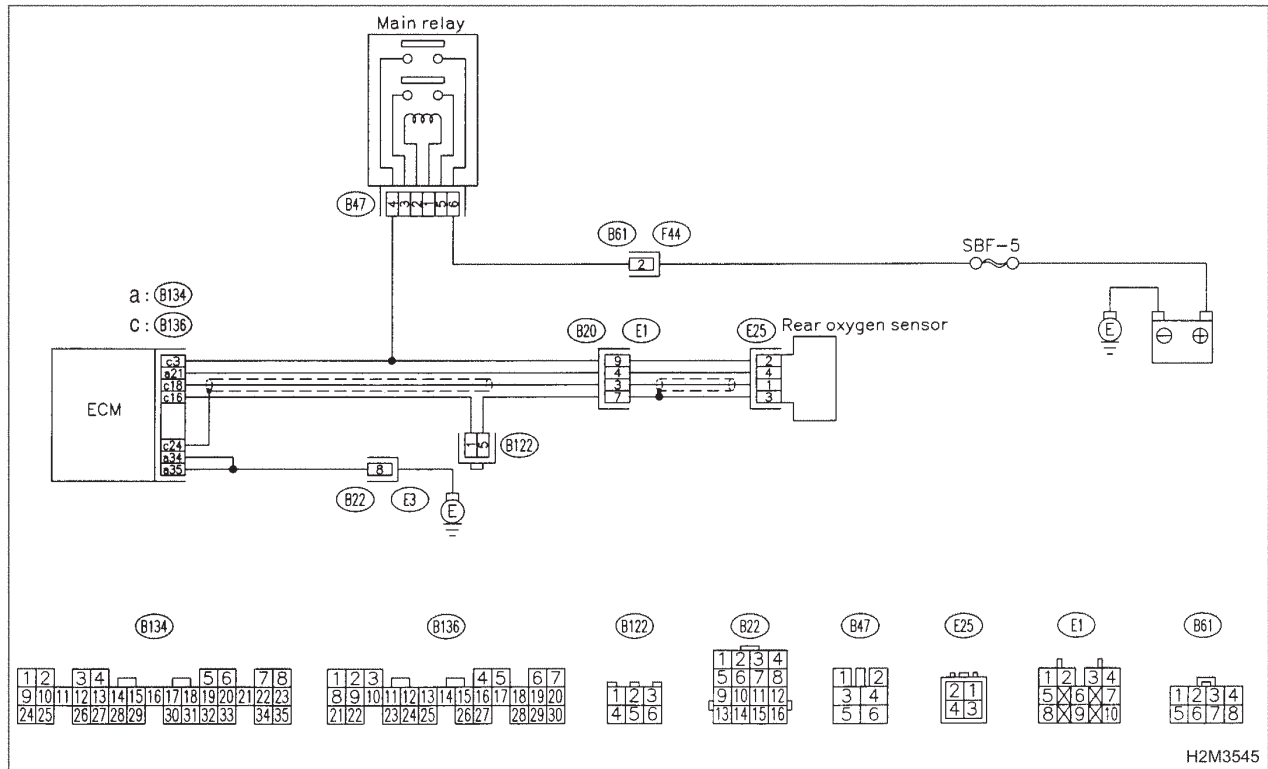
**DTC DETECTING CONDITION:**

Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

**WIRING DIAGRAM:**



**10R1 : CHECK ANY OTHER DTC ON DISPLAY.**

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136?
- YES** : Inspect DTC P0136 using "10. Diagnostics Chart with Trouble Code for 2200 cc Models". <Ref. to 2-7 [T10A0].>

**NOTE:**

In this case, it is not necessary to inspect DTC P0139.

- NO** : Replace rear oxygen sensor. <Ref. to 2-7 [W9A0].>

**S: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT LOW INPUT —**

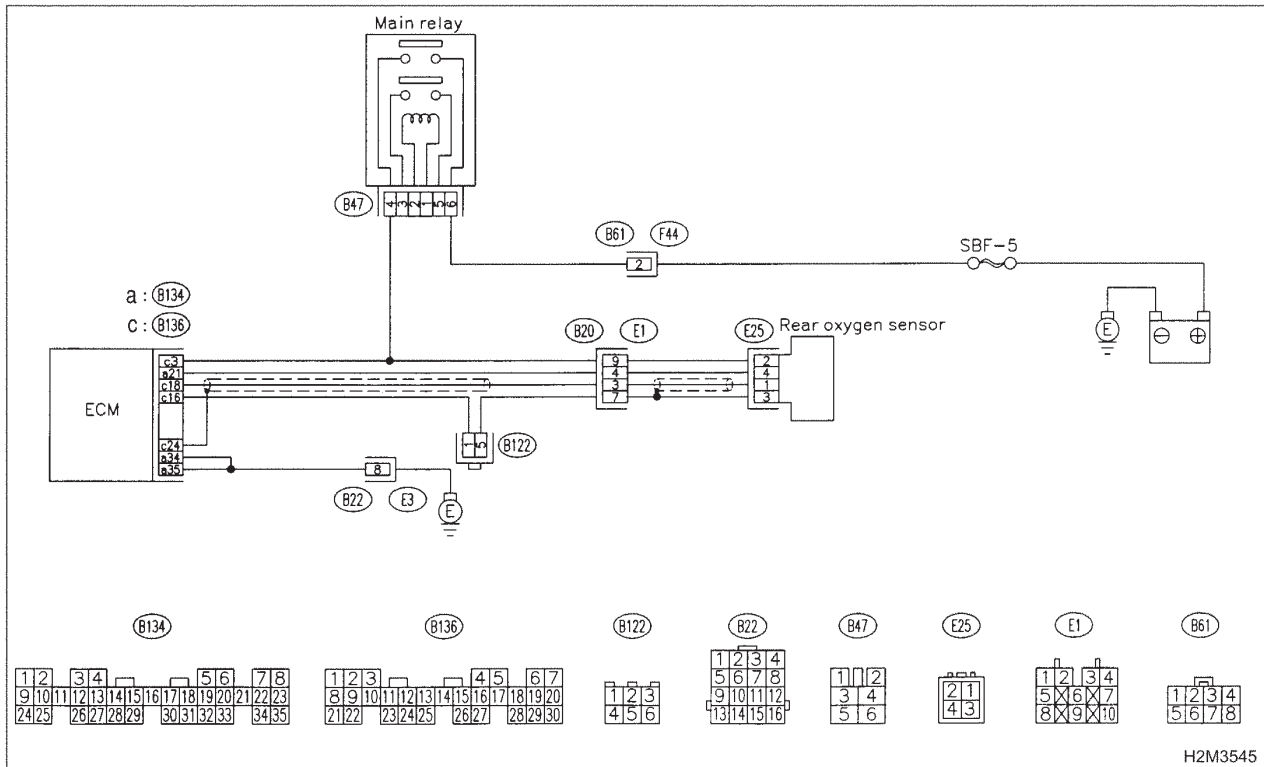
**DTC DETECTING CONDITION:**

Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0]> and INSPECTION MODE <Ref. to 2-7 [T3E0]>.

**WIRING DIAGRAM:**



**10S1 : CHECK ANY OTHER DTC ON DISPLAY.**

**CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0141 and P0135 at the same time?

**YES** : Go to step 10S2.

**NO** : Go to step 10S3.

**P: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION —**

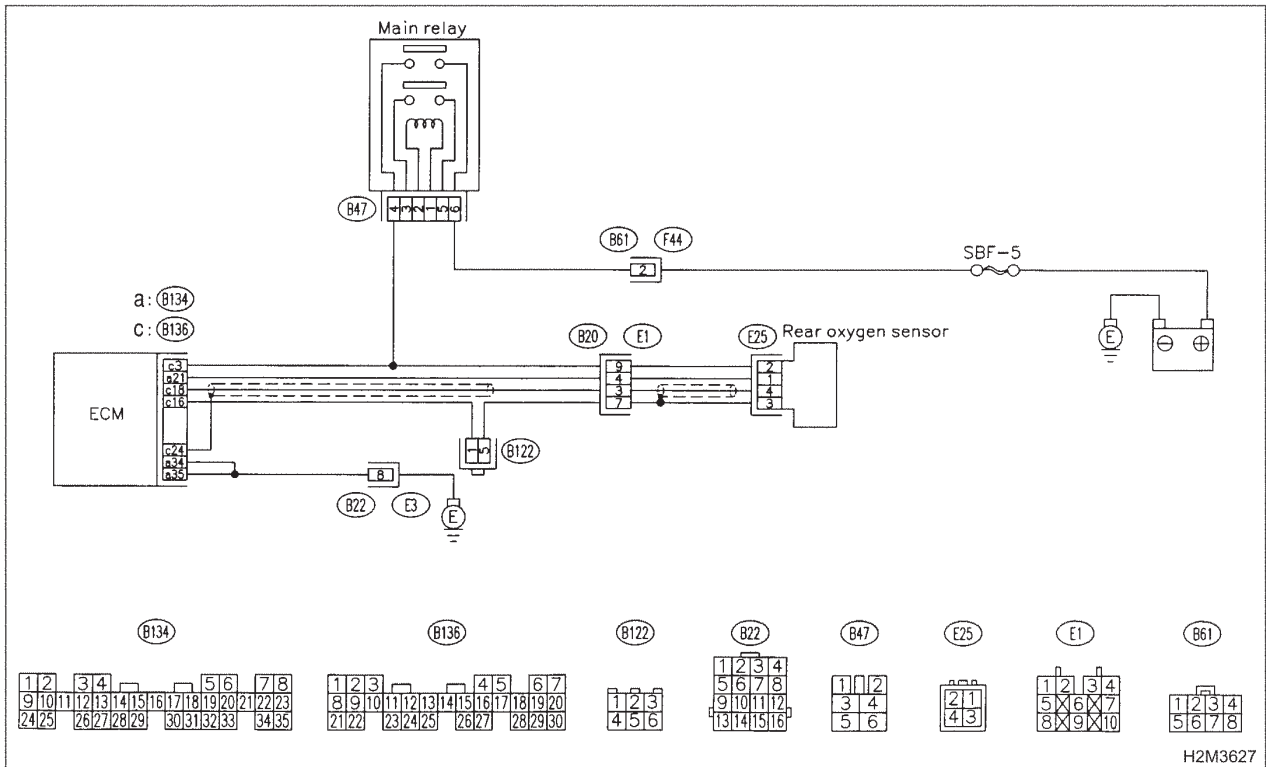
**DTC DETECTING CONDITION:**

Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>.

**WIRING DIAGRAM:**



**11P1 : CHECK ANY OTHER DTC ON DISPLAY.**

**CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?

- YES** : Go to step 11P2.
- NO** : Go to step 11P3.

**11P2 : CHECK FAILURE CAUSE OF P0130.**

Inspect DTC P1130 or P1131 using "11. Diagnostics Chart with Trouble Code for 2500 cc Models". <Ref. to 2-7 [T11A0].>

- CHECK** : Is the failure cause of P1130 or P1131 in the fuel system?
- YES** : Check fuel system.

**NOTE:**  
In this case, it is not necessary to inspect DTC P0136.

- NO** : Go to step 11P3.

**Q: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —**

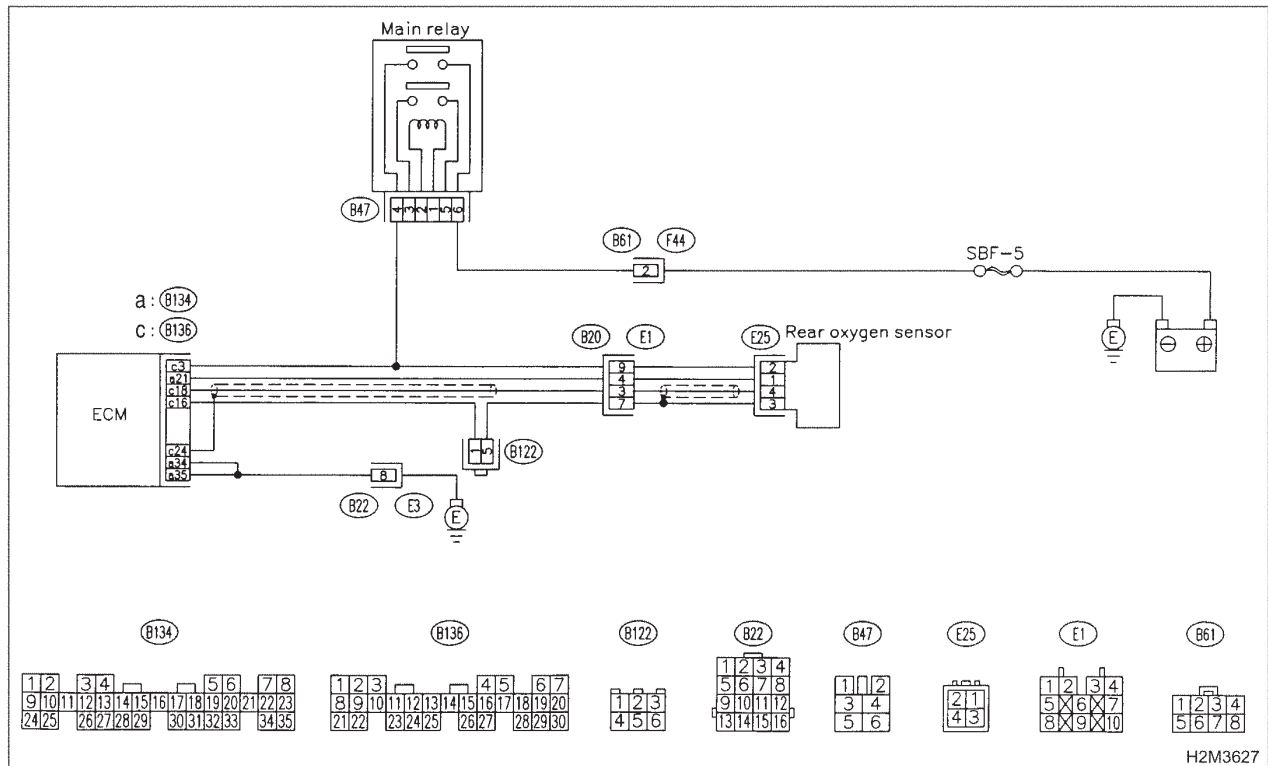
**DTC DETECTING CONDITION:**

Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

**WIRING DIAGRAM:**



**11Q1 : CHECK ANY OTHER DTC ON DISPLAY.**

- CHECK** : Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136?
- YES** : Inspect DTC P0136 using "11. Diagnostics Chart with Trouble Code for 2500 cc Models". <Ref. to 2-7 [T11A0].>

**NOTE:**

In this case, it is not necessary to inspect DTC P0139.

- NO** : Replace rear oxygen sensor. <Ref. to 2-7 [W9A0].>

**R: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION**

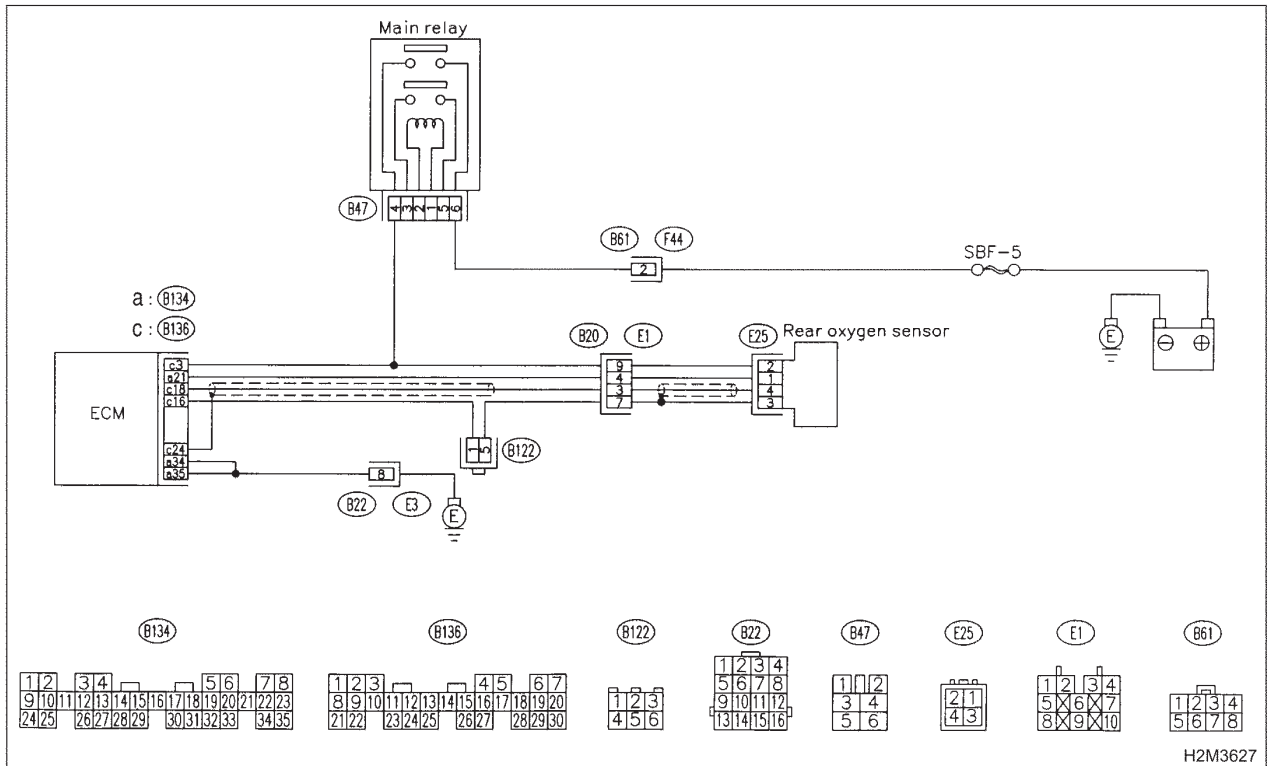
**DTC DETECTING CONDITION:**

Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to 2-7 [T3D0].> and INSPECTION MODE <Ref. to 2-7 [T3E0].>

**WIRING DIAGRAM:**



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

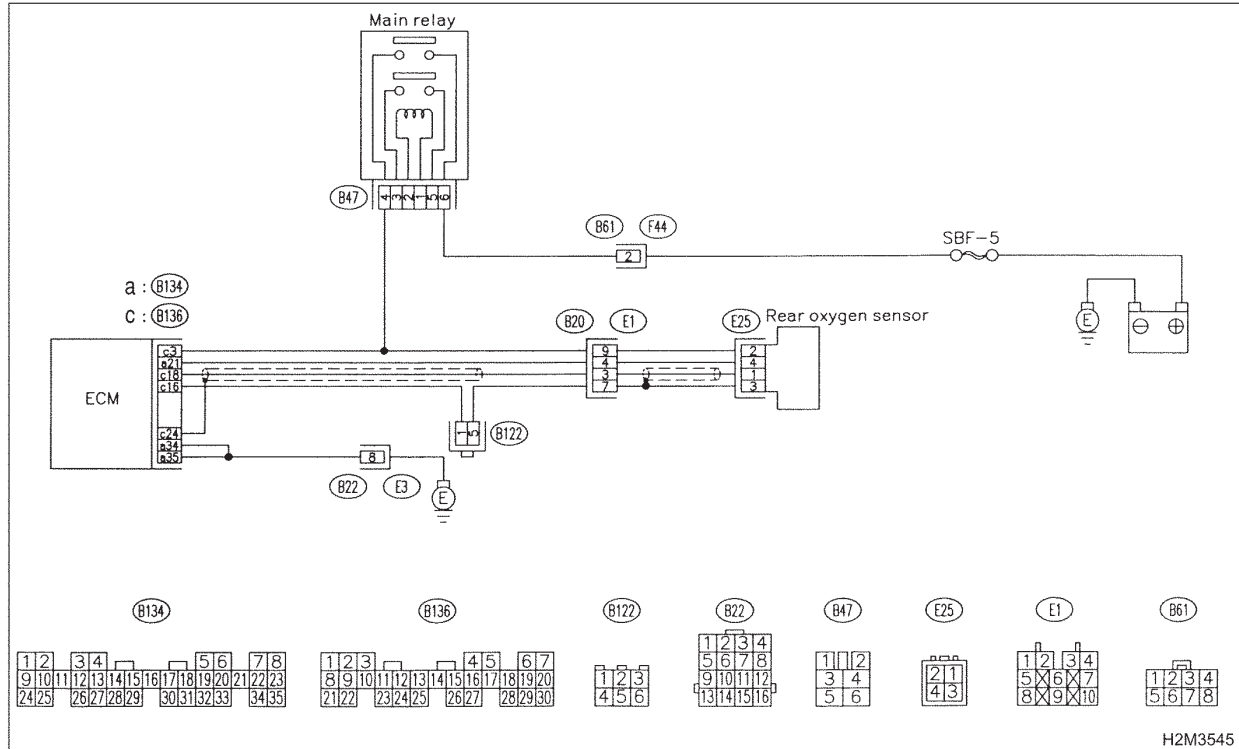
## P: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION — S008636B28

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	<b>CHECK ANY OTHER DTC ON DISPLAY.</b>	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?	Go to step 2.	Go to step 3.
2	<b>CHECK FAILURE CAUSE OF P1130 or P1131.</b> Inspect DTC P1130 or P1131 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.>	Is the failure cause of P1130 or P1131 in the fuel system?	Check fuel system. NOTE: In this case, it is not necessary to inspect DTC P0136.	Go to step 3.



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## Q: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —

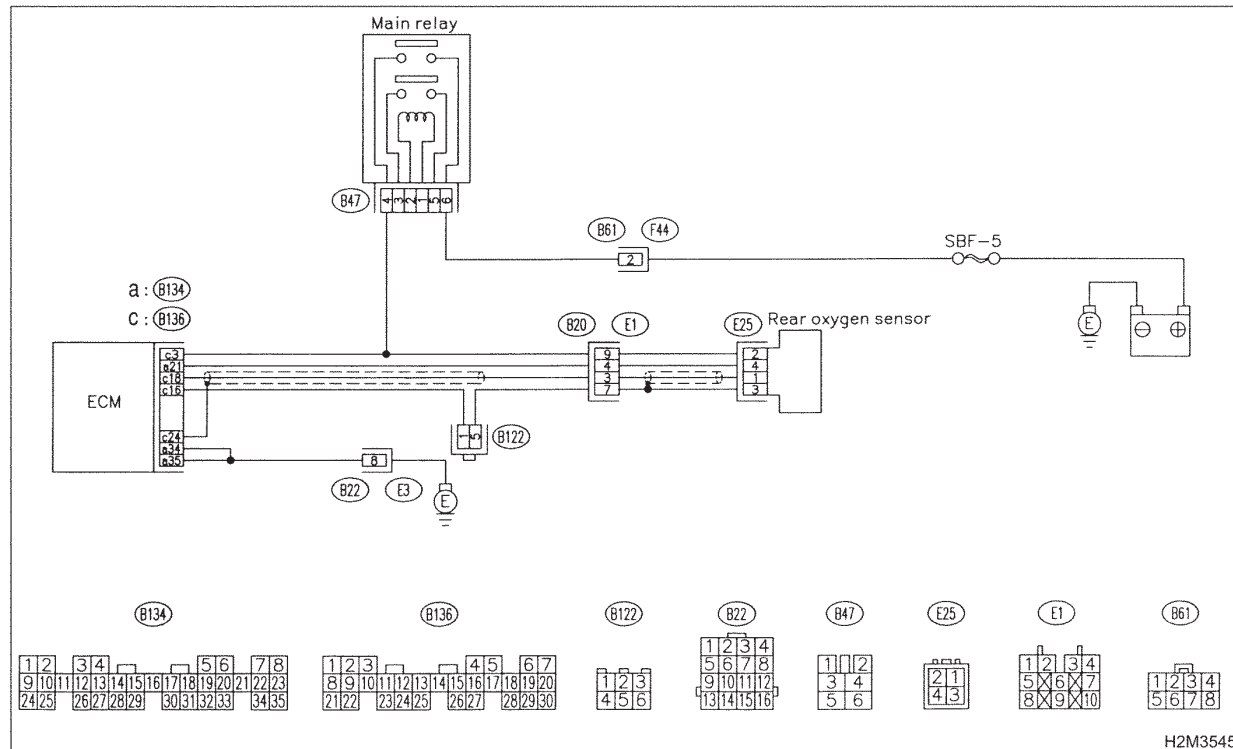
S008636B29

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0139?	Inspect DTC P0139 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> NOTE: In this case, it is not necessary to inspect DTC P0139.	Replace rear oxygen sensor. <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.>

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## R: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT LOW INPUT —

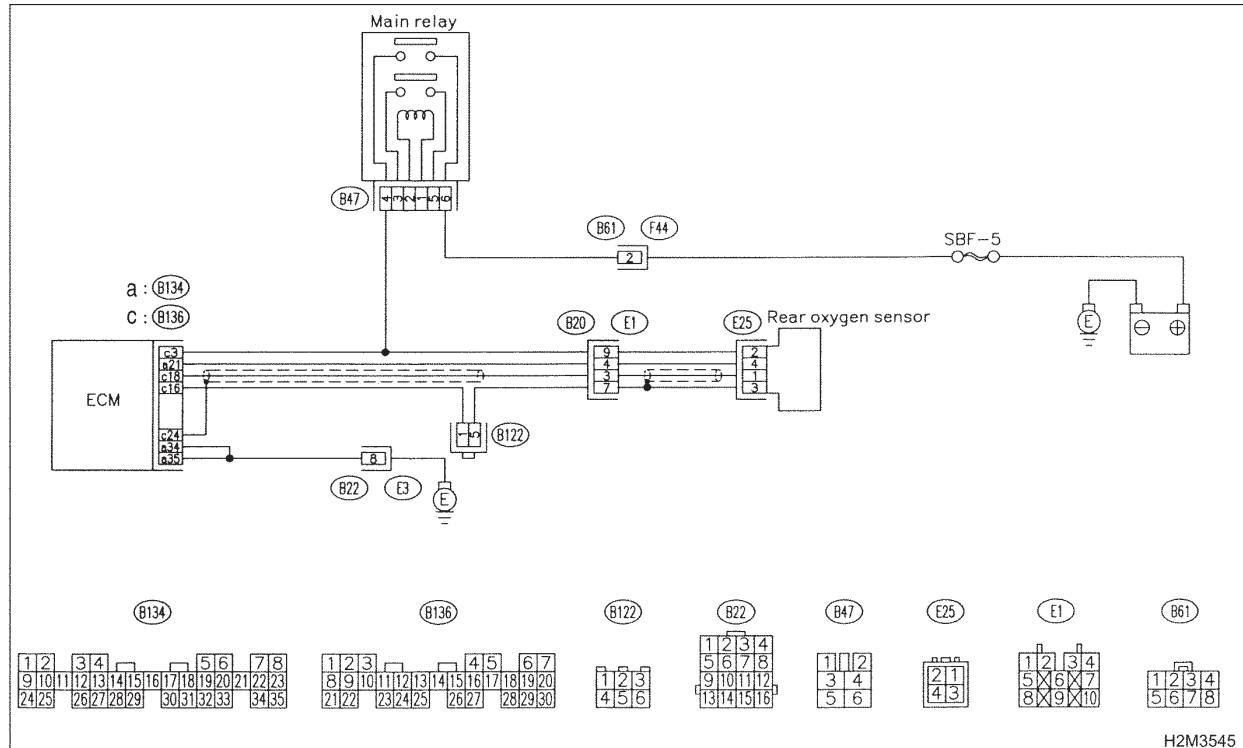
S008636F03

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



H2M3545

No.	Step	Check	Yes	No
1	<b>CHECK ANY OTHER DTC ON DISPLAY.</b>	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0141 and P0135 at the same time?	Go to step 2.	Go to step 3.
2	<b>CHECK GROUND CIRCUIT OF ECM.</b> 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B134) No. 35 — Chassis ground:</b>	Is the resistance less than 10 Ω?	Go to step 4.	Go to step 3.

EN-144

Replacement page for MSA5T0112A

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2500 CC MODELS

Engine

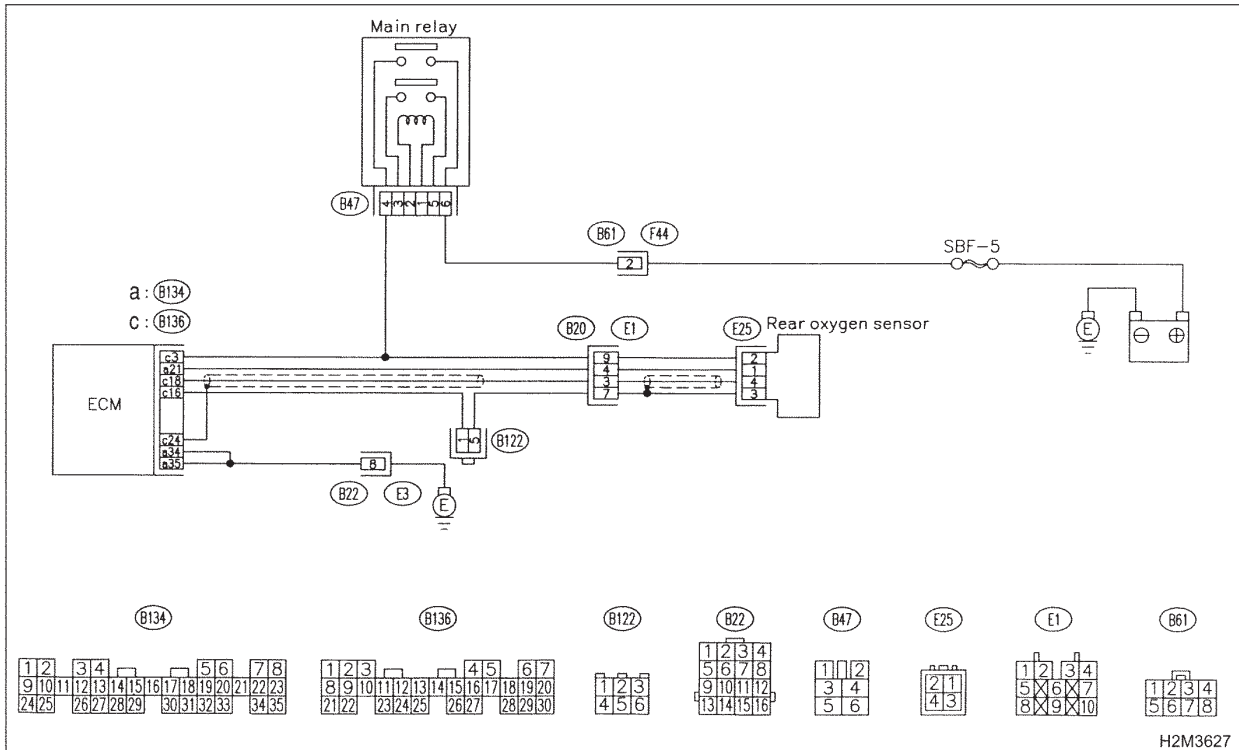
## O: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION — S008638B28

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	<b>CHECK ANY OTHER DTC ON DISPLAY.</b>	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?	Go to step 2.	Go to step 3.
2	<b>CHECK FAILURE CAUSE OF P0130.</b> Inspect DTC P1130 or P1131 using "19. List of Diagnostic Trouble Code (DTC) for 2500 cc Models". <Ref. to EN-300 LIST, List of Diagnostic Trouble Code (DTC) for 2500 cc Models.>	Is the failure cause of P1130 or P1131 in the fuel system?	Check fuel system. <b>NOTE:</b> In this case, it is not necessary to inspect DTC P0136.	Go to step 3.

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Replacement page for MSA5T0112A

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2500 CC MODELS

Engine

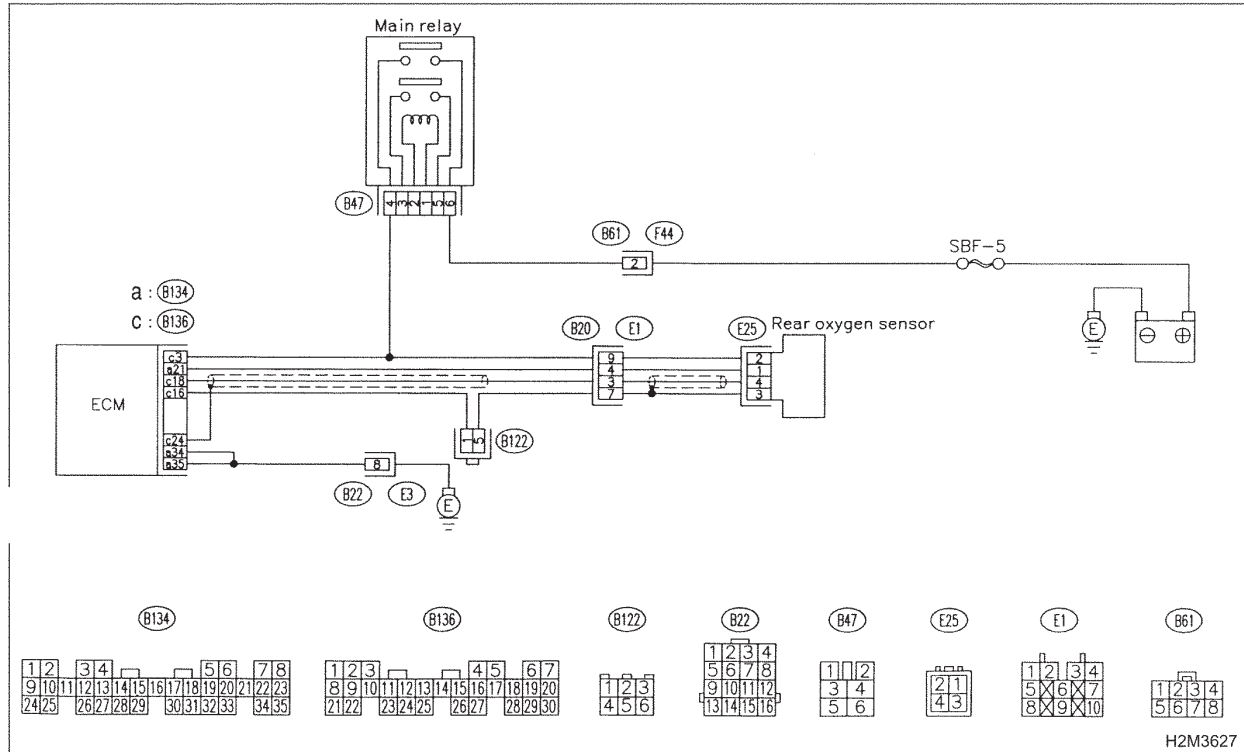
## P: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE — S008638B29

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136?	Inspect DTC P0136 using "19. List of Diagnostic Trouble Code (DTC) for 2500 cc Models". <Ref. to EN-300 LIST, List of Diagnostic Trouble Code (DTC) for 2500 cc Models.> NOTE: In this case, it is not necessary to inspect DTC P0139.	Replace rear oxygen sensor. <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.>

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Replacement page for MSA5T0112A

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2500 CC MODELS

Engine

## Q: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION

S008638B30

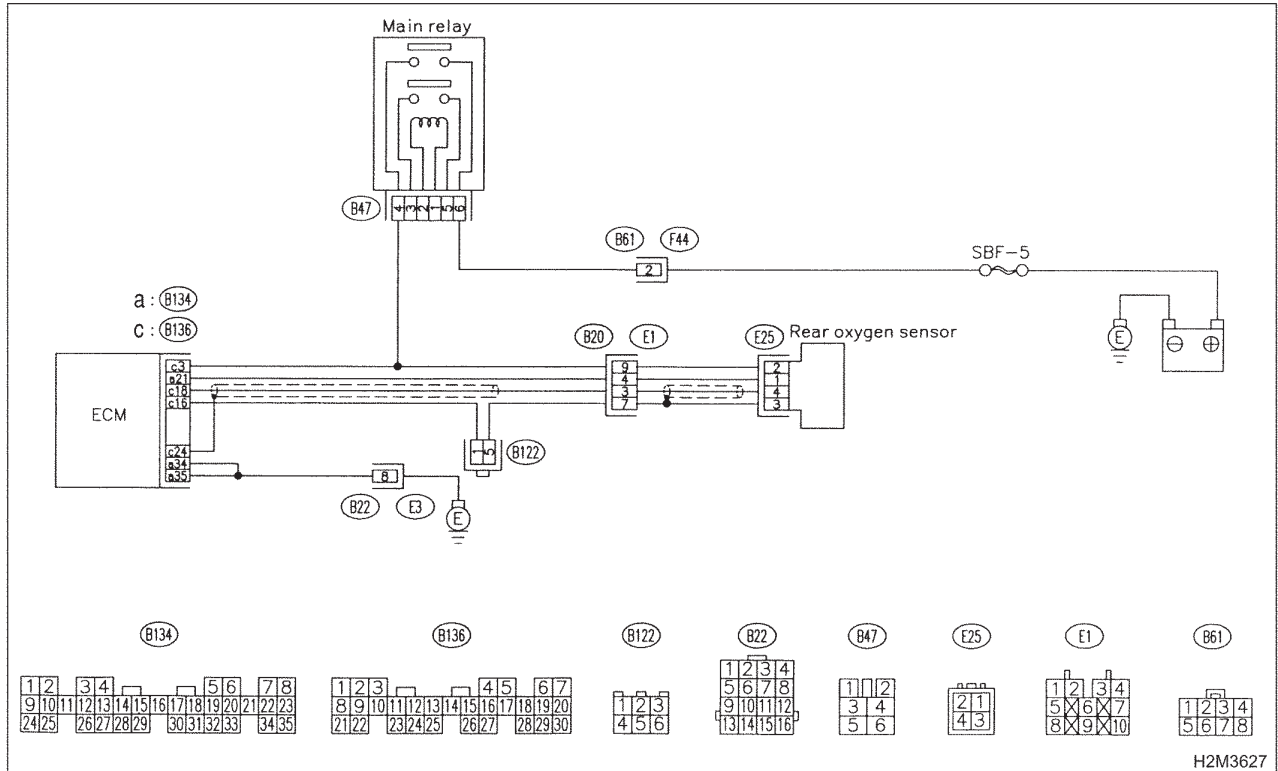
● **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	<b>CHECK GROUND CIRCUIT OF ECM.</b> 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM connector and chassis ground. <i>Connector &amp; terminal</i> <i>(B134) No. 35 — Chassis ground:</i>	Is the resistance less than 5 Ω?	Go to step 3.	Go to step 2.

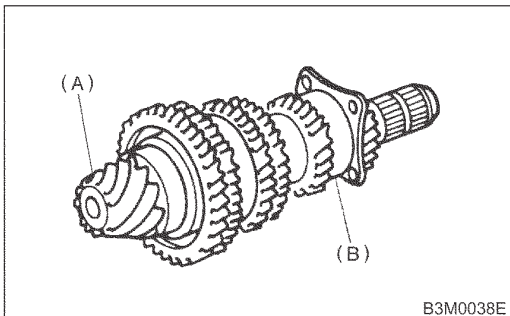
EN-352

Replacement page for MSA5T0112A

# DRIVE PINION SHAFT ASSEMBLY

Manual Transmission and Differential

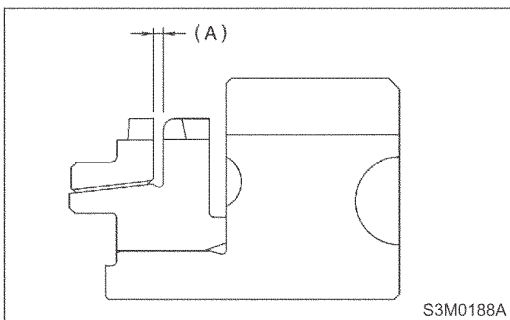
- The ball bearing on the rear side of the drive pinion shaft should be checked for smooth rotation before the drive pinion assembly is disassembled. In this case, because a preload is working on the bearing, its rotation feels like it is slightly dragging unlike the other bearings.



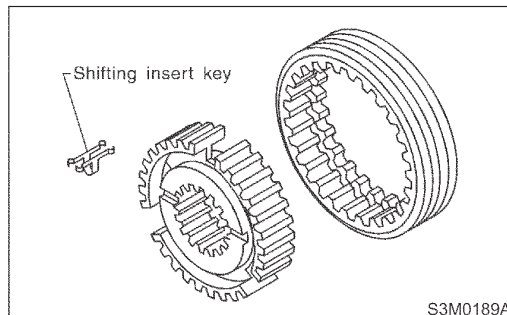
(A) Drive pinion shaft  
(B) Ball bearing

- Bearings having other defects
- 2) Bushing (each gear)  
Replace the bushing in the following cases:
- When the sliding surface is damaged or abnormally worn.
  - When the inner wall is abnormally worn.
- 3) Gears
- Replace gears with new ones if their tooth surfaces are broken, damaged, or excessively worn.
  - Correct or replace if the cone that contacts the baulk ring is rough or damaged.
  - Correct or replace if the inner surface or end face is damaged.
- 4) Baulk ring  
Replace the ring in the following cases:
- When the inner surface and end face are damaged.
  - When the ring inner surface is abnormally or partially worn down.
  - If the gap between the end faces of the ring and the gear splined part is excessively small when the ring is pressed against the cone.

**Clearance (A):**  
**0.5 — 1.0 mm (0.020 — 0.040 in)**

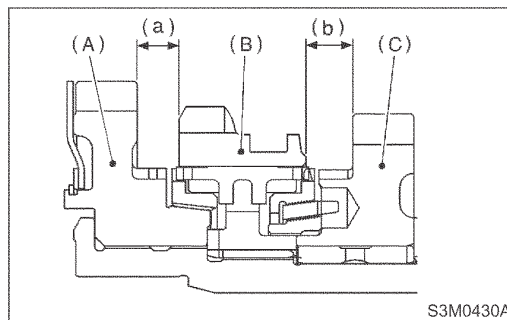


- When the contact surface of the synchronizer ring insert is scored or abnormally worn down.
- 5) Shifting insert key  
Replace the insert if deformed, excessively worn, or defective in any way.



- 6) Oil seal  
Replace the oil seal if the lip is deformed, hardened, damaged, worn, or defective in any way.
- 7) O-ring  
Replace the O-ring if the sealing face is deformed, hardened, damaged, worn, or defective in any way.
- 8) Gearshift mechanism  
Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.
- 9) Inspect clearance between 1st, 2nd driven gear and reverse driven gear.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**



(A) 1st driven gear  
(B) Reverse driven gear  
(C) 2nd driven gear

1st and 2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

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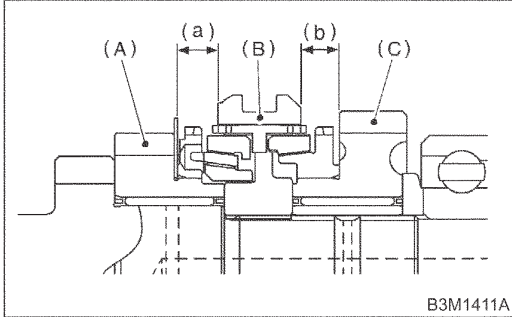
Replacement page for MSA5T0113A

# DRIVE PINION SHAFT ASSEMBLY

Manual Transmission and Differential

10) Inspect clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**

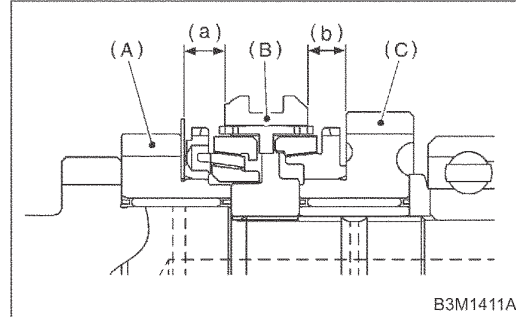


- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd – 4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

11) Inspect clearance between 5th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a):**  
**9.3 mm (0.374 in)**



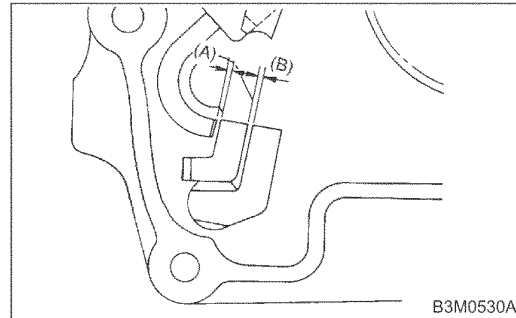
- (A) 5th drive gear
- (B) Coupling sleeve

5th shifter fork		
Part No.	Mark	Remarks
32812AA200	7	Approach to 5th gear by 0.2 mm (0.008 in).
32812AA210	—	Standard
32812AA220	9	Become distant from 5th gear by 0.2 mm (0.008 in).

12) Inspect rod end clearances (A) and (B). If any clearance is not within specifications, replace rod or fork as required.

**Clearance (A):**  
**1st — 2nd to 3rd — 4th:**  
**0.4 — 1.4 mm(0.016 — 0.055 in)**

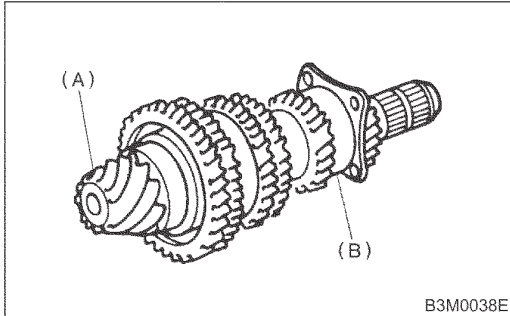
**Clearance (B):**  
**3rd — 4th to 5th:**  
**0.5 — 1.3 mm(0.020 — 0.051 in)**



# DRIVE PINION SHAFT ASSEMBLY

Manual Transmission and Differential

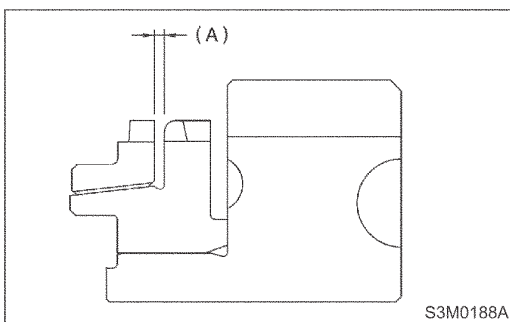
- The ball bearing on the rear side of the drive pinion shaft should be checked for smooth rotation before the drive pinion assembly is disassembled. In this case, because a preload is working on the bearing, its rotation feels like it is slightly dragging unlike the other bearings.



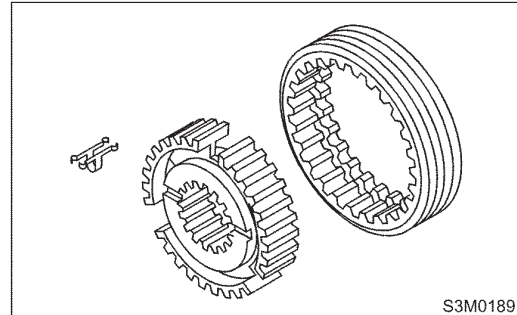
(A) Drive pinion shaft  
(B) Ball bearing

- Bearings having other defects
- 2) Bushing (each gear)  
Replace the bushing in the following cases:
- When the sliding surface is damaged or abnormally worn.
  - When the inner wall is abnormally worn.
- 3) Gears
- Replace gears with new ones if their tooth surfaces are broken, damaged, or excessively worn.
  - Correct or replace if the cone that contacts the baulk ring is rough or damaged.
  - Correct or replace if the inner surface or end face is damaged.
- 4) Baulk ring  
Replace the ring in the following cases:
- When the inner surface and end face are damaged.
  - When the ring inner surface is abnormally or partially worn down.
  - If the gap between the end faces of the ring and the gear splined part is excessively small when the ring is pressed against the cone.

**Clearance (A):**  
**0.5 — 1.0 mm (0.020 — 0.040 in)**

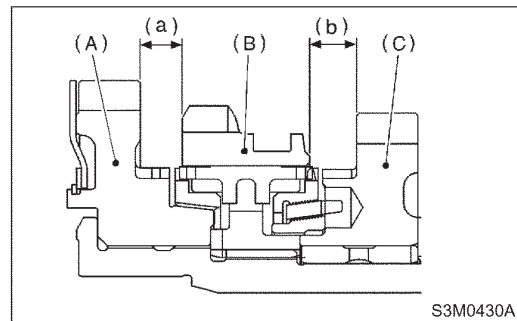


- When the contact surface of the synchronizer ring insert is scored or abnormally worn down.
- 5) Shifting insert key  
Replace the insert if deformed, excessively worn, or defective in any way.



- 6) Oil seal  
Replace the oil seal if the lip is deformed, hardened, damaged, worn, or defective in any way.
- 7) O-ring  
Replace the O-ring if the sealing face is deformed, hardened, damaged, worn, or defective in any way.
- 8) Gearshift mechanism  
Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.
- 9) Inspect clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**



(A) 1st driven gear  
(B) Reverse driven gear  
(C) 2nd driven gear

1st – 2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

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Replacement page for MSA5T0104A

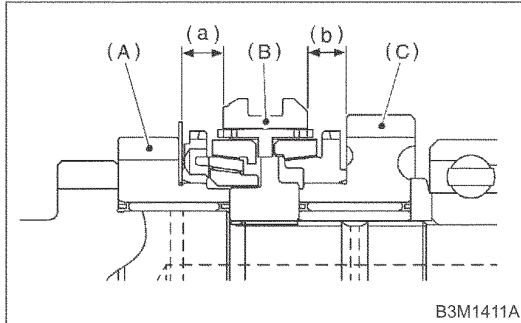


# DRIVE PINION SHAFT ASSEMBLY

Manual Transmission and Differential

10) Inspect clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**

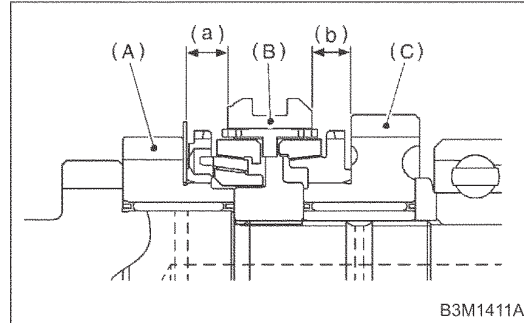


- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd – 4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

11) Inspect clearance between 5th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a):**  
**9.3 mm (0.366 in)**



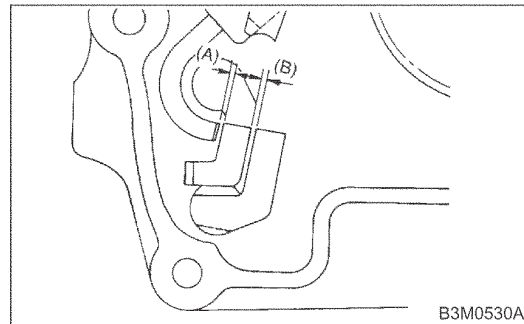
- (A) 5th drive gear
- (B) Coupling sleeve

5th shifter fork		
Part No.	Mark	Remarks
32812AA201	7	Approach to 5th gear by 0.2 mm (0.008 in).
32812AA211	—	Standard
32812AA221	9	Become distant from 5th gear by 0.2 mm (0.008 in).

12) Inspect rod end clearances (A) and (B). If any clearance is not within specifications, replace rod or fork as required.

**Clearance (A):**  
**1st — 2nd to 3rd — 4th:**  
**0.4 — 1.4 mm(0.016 — 0.055 in)**

**Clearance (B):**  
**3rd — 4th to 5th:**  
**0.5 — 1.3 mm(0.020 — 0.051 in)**



# SHIFTER FORK AND ROD

Manual Transmission and Differential

**CAUTION:**

**Apply a coat of grease to plunger to prevent it from falling.**

6) Install 3-4 fork rod into 3-4 shifter fork via the hole on the rear of transmission case.

7) Align the holes in rod and fork, and drive straight pin into these holes.

**CAUTION:**

**Replace straight pin with a new one.**

**NOTE:**

- Set reverse fork rod to neutral.
- Make sure interlock plunger (installing before) is on the reverse fork rod side.

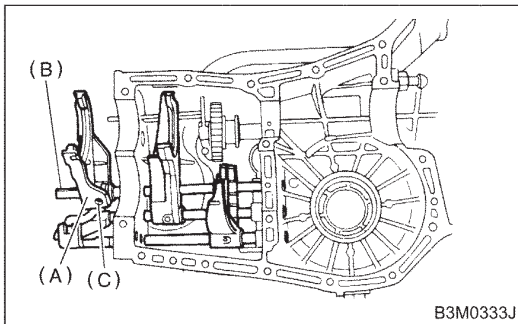
ST 398791700 STRAIGHT PIN REMOVER

8) Install 5th shifter fork onto the rear of reverse fork rod. Align holes in the two parts and drive straight pin into place.

**CAUTION:**

**Replace straight pin with a new one.**

ST 398791700 STRAIGHT PIN REMOVER

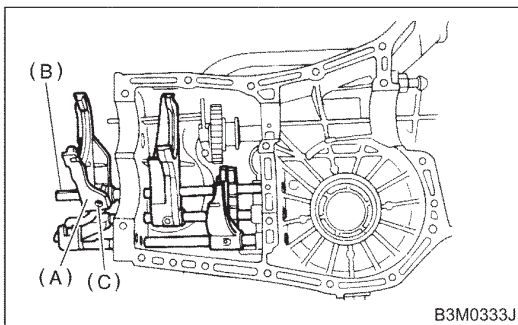


- (A) 5th shifter fork
- (B) Reverse fork rod
- (C) Straight pin

9) Position balls, checking ball springs and gaskets into 3-4 and 1-2 rod holes, and install plugs.

**CAUTION:**

**Replace gasket with a new one.**



10) Install differential assembly. <Ref. to MT-68, INSTALLATION, Front Differential Assembly.>

11) Install main shaft assembly.

12) Install drive pinion shaft assembly. <Ref. to MT-59, INSTALLATION, Drive Pinon Shaft Assembly.>

13) Install transmission case. <Ref. to MT-50, INSTALLATION, Transmission Case.>

14) Install transfer case with extension case assembly. <Ref. to MT-38, INSTALLATION, Transfer Case and Extension Case Assembly.>

15) Install back-up light switch and neutral position switch. <Ref. to MT-34, INSTALLATION, Switches and Harness.>

16) Install the manual transmission assembly to vehicle. <Ref. to MT-28, INSTALLATION, Manual Transmission Assembly.>

**C: INSPECTION** S503255A10

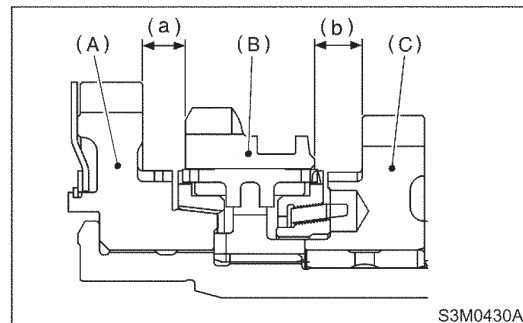
1) Check the shift shaft and shift rod for damage. Replace if damaged.

2) Gearshift mechanism

Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.

3) Inspect clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**



- (A) 1st driven gear
- (B) Reverse driven gear
- (C) 2nd driven gear

1st – 2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

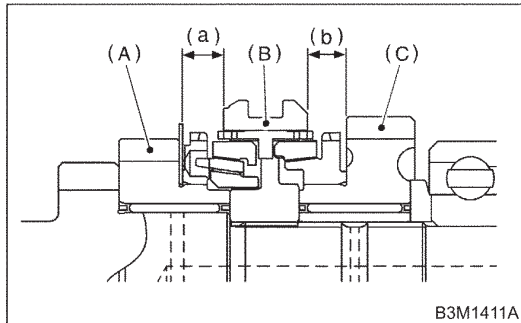
**MT-78**

Replacement page for MSA5T0224A

# SHIFTER FORK AND ROD

4) Inspect clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**

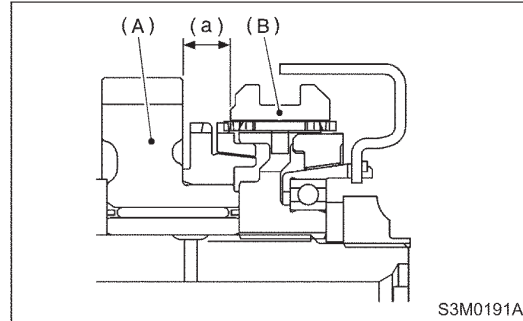


- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd – 4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

5) Inspect clearance between 5th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a):**  
**9.3 mm (0.366 in)**



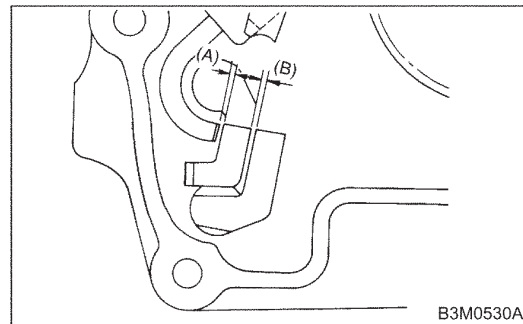
- (A) 5th drive gear
- (B) Coupling sleeve

5th shifter fork		
Part No.	Mark	Remarks
32812AA201	7	Approach to 5th gear by 0.2 mm (0.008 in).
32812AA211	—	Standard
32812AA221	9	Become distant from 5th gear by 0.2 mm (0.008 in).

6) Inspect rod end clearances (A) and (B). If any clearance is not within specifications, replace rod or fork as required.

**Clearance (A):**  
**1st – 2nd to 3rd – 4th:**  
**0.4 – 1.4 mm (0.016 – 0.055 in)**

**Clearance (B):**  
**3rd – 4th to 5th:**  
**0.5 – 1.3 mm (0.020 – 0.051 in)**



# SHIFTER FORK AND ROD

## MANUAL TRANSMISSION AND DIFFERENTIAL

### C: INSPECTION

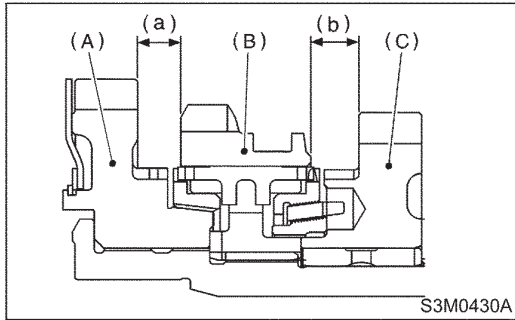
1) Check the shift shaft and shift rod for damage. Replace if damaged.

2) Gearshift mechanism

Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.

3) Inspect the clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**

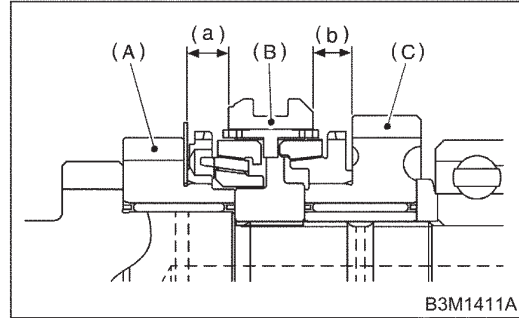


- (A) 1st driven gear
- (B) Reverse driven gear
- (C) 2nd driven gear

1st-2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

4) Inspect the clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**



- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd-4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

# SHIFTER FORK AND ROD

Manual Transmission and Differential

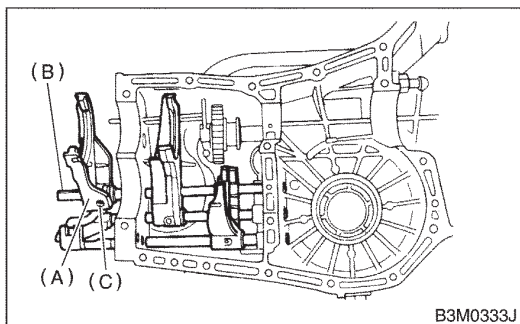
**NOTE:**

- Set reverse fork rod to neutral.
- Make sure interlock plunger (installing before) is on the reverse fork rod side.

ST 398791700 STRAIGHT PIN REMOVER

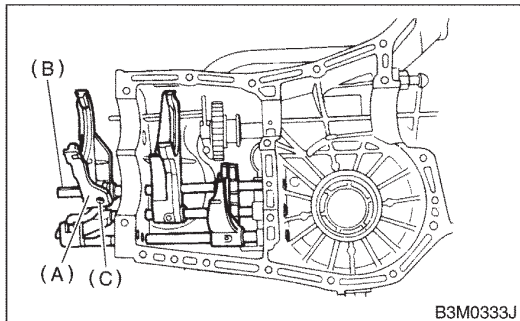
8) Install 5th shifter fork onto the rear of reverse fork rod. Align holes in the two parts and new drive straight pin into place.

ST 398791700 STRAIGHT PIN REMOVER



- (A) 5th shifter fork
- (B) Reverse fork rod
- (C) Straight pin

9) Position balls, checking ball springs and new gaskets into 3-4 and 1-2 rod holes, and install plugs.

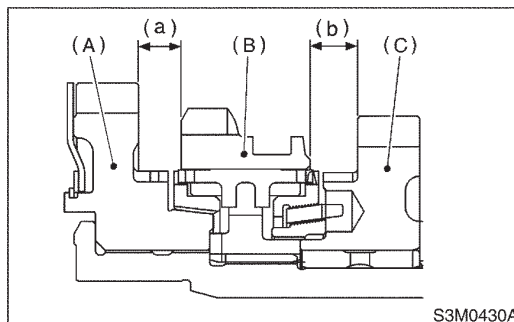


- 10) Install differential assembly. <Ref. to MT-69, INSTALLATION, Front Differential Assembly.>
- 11) Install main shaft assembly.
- 12) Install drive pinion shaft assembly. <Ref. to MT-60, INSTALLATION, Drive Pinon Shaft Assembly.>
- 13) Install transmission case. <Ref. to MT-51, INSTALLATION, Transmission Case.>
- 14) Install transfer case with extension case assembly. <Ref. to MT-39, INSTALLATION, Transfer Case and Extension Case Assembly.>
- 15) Install back-up light switch and neutral position switch. <Ref. to MT-35, INSTALLATION, Switches and Harness.>
- 16) Install the manual transmission assembly to vehicle. <Ref. to MT-29, INSTALLATION, Manual Transmission Assembly.>

**C: INSPECTION** S503255A10

- 1) Check the shift shaft and shift rod for damage. Replace if damaged.
- 2) Gearshift mechanism  
Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.
- 3) Inspect clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**



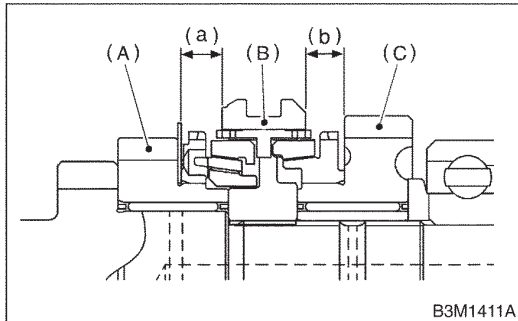
- (A) 1st driven gear
- (B) Reverse driven gear
- (C) 2nd driven gear

1st-2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

# SHIFTER FORK AND ROD

4) Inspect clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**

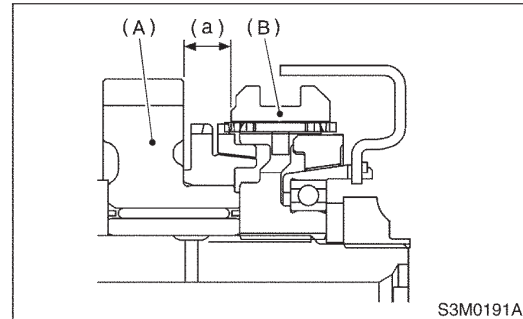


- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd-4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

5) Inspect clearance between 5th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a):**  
**9.3 mm (0.366 in)**



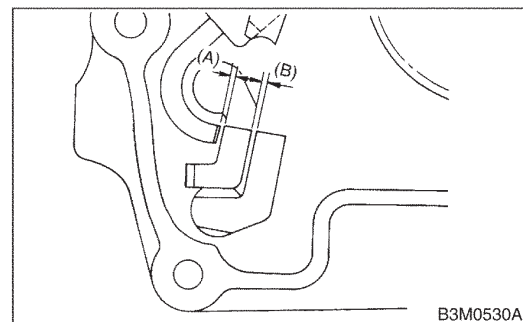
- (A) 5th drive gear
- (B) Coupling sleeve

5th shifter fork		
Part No.	Mark	Remarks
32812AA201	7	Approach to 5th gear by 0.2 mm (0.008 in).
32812AA211	—	Standard
32812AA221	9	Become distant from 5th gear by 0.2 mm (0.008 in).

6) Inspect rod end clearances (A) and (B). If any clearance is not within specifications, replace rod or fork as required.

**Clearance (A):**  
**1st — 2nd to 3rd — 4th:**  
**0.4 — 1.4 mm (0.016 — 0.055 in)**

**Clearance (B):**  
**3rd — 4th to 5th:**  
**0.5 — 1.3 mm (0.020 — 0.051 in)**

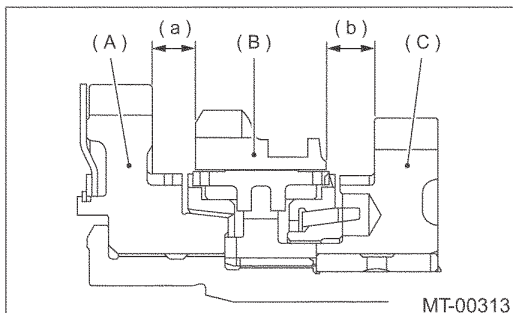


# SHIFTER FORK AND ROD

## MANUAL TRANSMISSION AND DIFFERENTIAL

3) Inspect the clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**

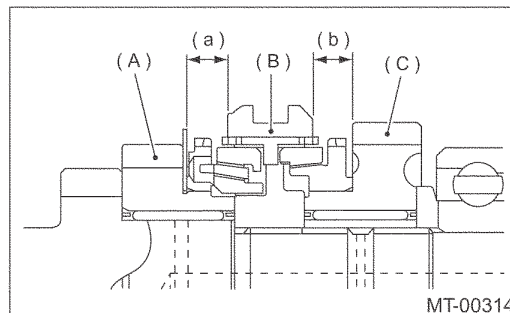


- (A) 1st driven gear
- (B) Reverse driven gear
- (C) 2nd driven gear

1st-2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 2nd gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 1st gear by 0.2 mm (0.008 in).

4) Inspect the clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**



- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd-4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

# SHIFTER FORK AND ROD

MANUAL TRANSMISSION AND DIFFERENTIAL

## C: INSPECTION

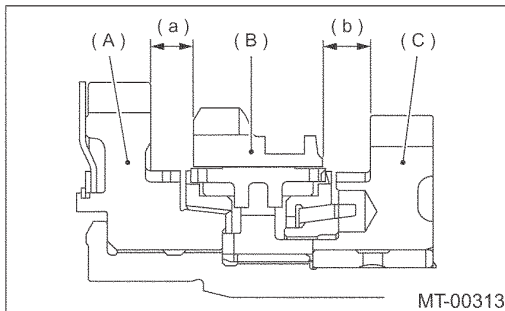
1) Check the shift shaft and shift rod for damage. Replace if damaged.

2) Gearshift mechanism

Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.

3) Inspect clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**

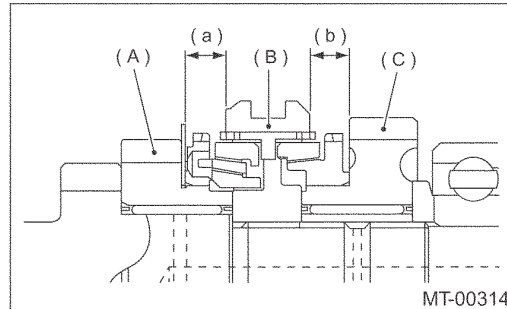


- (A) 1st driven gear
- (B) Reverse driven gear
- (C) 2nd driven gear

1st-2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

4) Inspect clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**

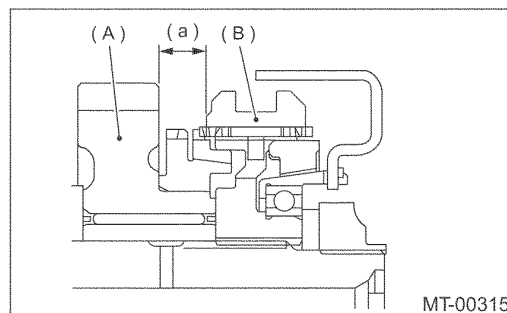


- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd-4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

5) Inspect clearance between 5th drive gear and coupling sleeve. If any clearance is not within specifications, replace shifter fork as required.

**Clearance (a):**  
**9.3 mm (0.366 in)**



- (A) 5th drive gear
- (B) Coupling sleeve

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Replacement page for MSA5T0304A



# SHIFTER FORK AND ROD

## MANUAL TRANSMISSION AND DIFFERENTIAL

6) Install the 3-4 fork rod into 3-4 shifter fork via the hole on the rear of transmission case.

7) Align the holes in rod and fork, and new drive straight pin into these holes.

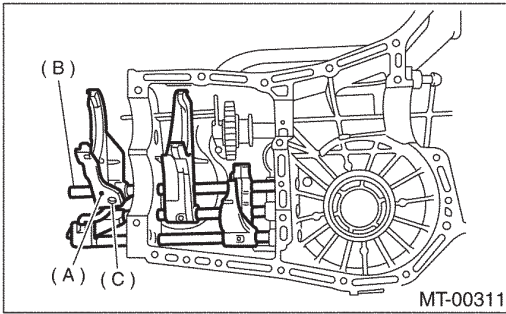
**NOTE:**

- Set the reverse fork rod to neutral.
- Make sure the interlock plunger (installing before) is on the reverse fork rod side.

ST 398791700 STRAIGHT PIN REMOVER

8) Install the 5th shifter fork onto the rear of reverse fork rod. Align holes in the two parts and new drive straight pin into place.

ST 398791700 STRAIGHT PIN REMOVER

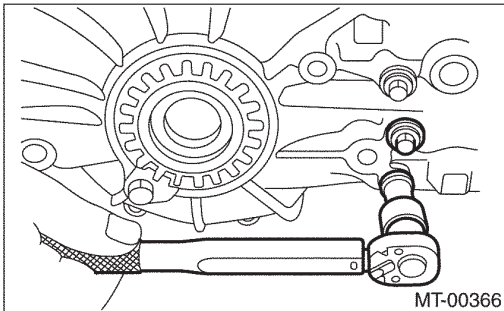


- (A) 5th shifter fork
- (B) Reverse fork rod
- (C) Straight pin

9) Position the balls, checking ball springs and new gaskets into 3-4 and 1-2 rod holes, and install plugs.

**Tightening torque:**

**20 N·m (2.0 kgf·m, 14.1 ft·lb)**



10) Install the differential assembly. <Ref. to 5MT-72, INSTALLATION, Front Differential Assembly.>

11) Install the main shaft assembly. <Ref. to 5MT-58, INSTALLATION, Main Shaft Assembly.>

12) Install the drive pinion shaft assembly. <Ref. to 5MT-64, INSTALLATION, Drive Pinion Shaft Assembly.>

13) Install the transmission case. <Ref. to 5MT-56, INSTALLATION, Transmission Case.>

14) Install the transfer case with extension case assembly. <Ref. to 5MT-43, INSTALLATION, Transfer Case and Extension Case Assembly.>

15) Install the back-up light switch and neutral position switch. <Ref. to 5MT-39, INSTALLATION, Switches and Harness.>

16) Install the manual transmission assembly to vehicle. <Ref. to 5MT-31, INSTALLATION, Manual Transmission Assembly.>

**C: INSPECTION**

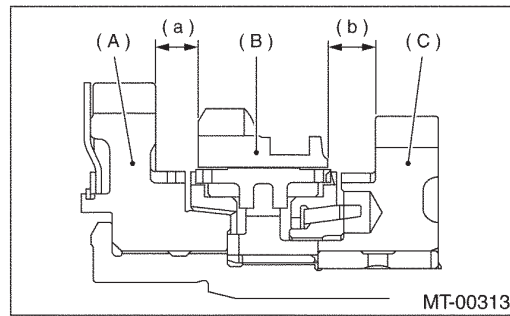
1) Check the shift shaft and shift rod for damage. Replace if damaged.

2) Gearshift mechanism:

Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.

3) Inspect the clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a) and (b):  
9.5 mm (0.374 in)**



- (A) 1st driven gear
- (B) Reverse driven gear
- (C) 2nd driven gear

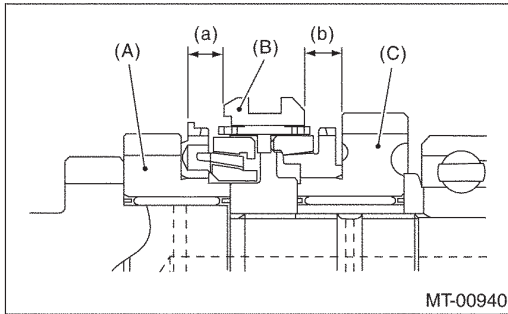
1st-2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

# SHIFTER FORK AND ROD

MANUAL TRANSMISSION AND DIFFERENTIAL

4) Inspect the clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a) and (b):**  
**9.3 mm (0.366 in)**

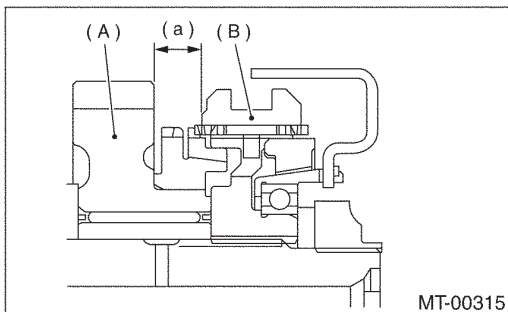


- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd-4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

5) Inspect the clearance between 5th drive gear and coupling sleeve. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a):**  
**9.3 mm (0.366 in)**



- (A) 5th drive gear
- (B) Coupling sleeve

5th shifter fork (Non-TURBO)		
Part No.	Mark	Remarks
32812AA201	7	Approach to 5th gear by 0.2 mm (0.008 in).
32812AA211	—	Standard
32812AA221	9	Become distant from 5th gear by 0.2 mm (0.008 in).

5th shifter fork (Turbo)		
Part No.	Mark	Remarks
32812AA231	7	Approach to 5th gear by 0.2 mm (0.008 in).
32812AA241	—	Standard
32812AA251	9	Become distant from 5th gear by 0.2 mm (0.008 in).

6) Inspect the rod end clearances (A) and (B). If any clearance is not within specifications, replace the rod or fork as required.

**Clearance (A):**

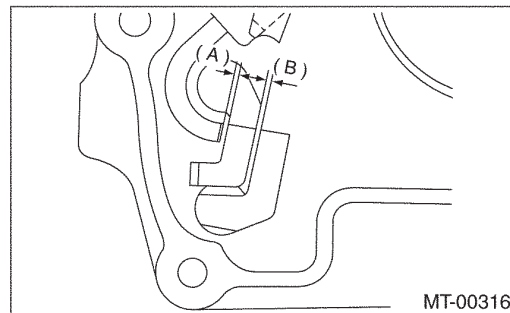
**1st-2nd to 3rd-4th:**

**0.4 — 1.4 mm (0.016 — 0.055 in)**

**Clearance (B):**

**3rd-4th to 5th:**

**0.5 — 1.3 mm (0.020 — 0.051 in)**



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replacement page for MSA5T0405A

# SHIFTER FORK AND ROD

MANUAL TRANSMISSION AND DIFFERENTIAL

## C: INSPECTION

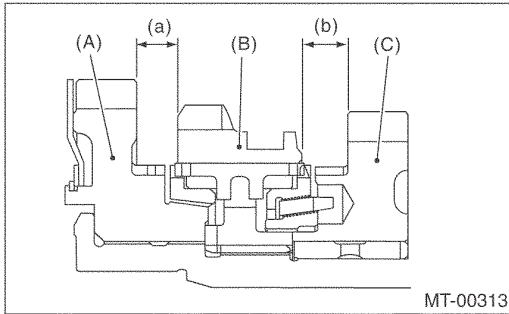
1) Check the shift shaft and shift rod for damage. Replace if damaged.

2) Gearshift mechanism:

Repair or replace the gearshift mechanism if excessively worn, bent, or defective in any way.

3) Inspect the clearance between 1st, 2nd driven gear and reverse driven gear. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a) and (b):**  
**9.5 mm (0.374 in)**

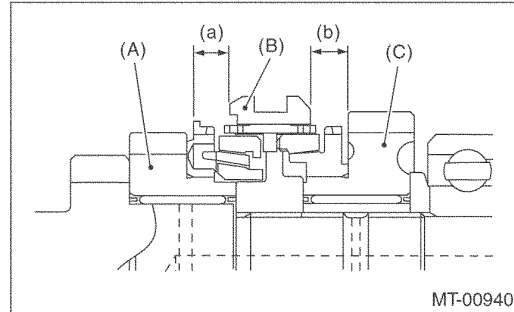


- (A) 1st driven gear
- (B) Reverse driven gear
- (C) 2nd driven gear

1st-2nd shifter fork		
Part No.	Mark	Remarks
32804AA060	1	Approach to 1st gear by 0.2 mm (0.008 in).
32804AA070	—	Standard
32804AA080	3	Approach to 2nd gear by 0.2 mm (0.008 in).

4) Inspect the clearance between 3rd, 4th drive gear and coupling sleeve. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a) and (b):**  
**7.3 mm (0.287 in)**

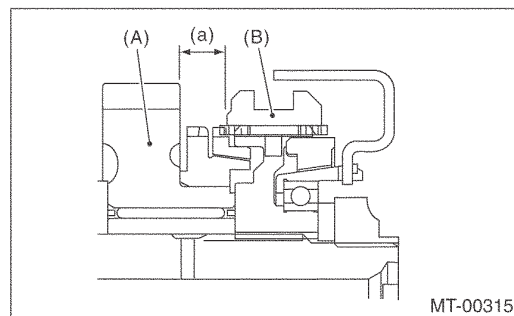


- (A) 3rd drive gear
- (B) Coupling sleeve
- (C) 4th drive gear

3rd-4th shifter fork		
Part No.	Mark	Remarks
32810AA061	1	Approach to 4th gear by 0.2 mm (0.008 in).
32810AA071	—	Standard
32810AA101	3	Approach to 3rd gear by 0.2 mm (0.008 in).

5) Inspect the clearance between 5th drive gear and coupling sleeve. If any clearance is not within specifications, replace the shifter fork as required.

**Clearance (a):**  
**9.3 mm (0.366 in)**



- (A) 5th drive gear
- (B) Coupling sleeve

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Replacement page for MSA5T0415A