MITSUBISHI MOTORS

# SERVICE BULLETIN

**DOMESTIC SALES & AFTER SALES SERVICE OFFICE, MITSUBISHI MOTORS CORPORATION**

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| PURPOSE : INFORMATION | ISSUE NO. : MSB-10E35-002A | DATE : 2010-08-05 |
| SUBJECT : WHEEL SPEED SENSOR INSPECTION PROCEDURE | | <MODEL> <M/Y> |
| GROUP : ANTI-SKID BRAKING SYSTEM (ABS)/ACTIVE STABILITY CONTROL SYSTEM (ASC) | | (EUR/RUSSIA/ UK(Japanese Domestic Spec.)) See following 2. Applicable Manuals table. |

**1. Description:**

The inspection procedure for wheel speed sensor is established. According to this, troubleshooting procedures for some diagnosis codes are also changed. This Service Bulletin contains the correct information regarding these changes.

**2. Applicable Manuals:**

See Attached sheets 1 (1/22) to 1 (22/22).

There may be some attached sheets not included in this Service Bulletin because they are not applicable to your market. Their sheet numbers are not listed in the above table.

**3. Details:**

See Attached sheets 17 to 25, 27, 30 to 32 and 47.

Attached sheet 1 (1/22)

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2008 LANCER Workshop Manual (CY0A) | 08 | CG1E08E2-CD (English) CG1S08E2-CD (Spanish) CG1F08E2-CD (French) CG1G08E2-CD (German) | Special Tools (M352-00-061-12700-01), (M355-00-580-14501-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-18500-01), (M355-01-640-25900-01) | Attached sheet 19 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-08500-01), (M355-01-650-23400-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-18200-01), (M355-01-660-25300-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-18900-01), (M355-01-670-25000-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-08900-01), (M355-01-680-20200-01) | Attached sheet 22 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-08600-01), (M355-01-690-20900-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-17900-01), (M355-01-700-22100-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-17600-01), (M355-01-710-22800-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-08700-01), (M355-01-720-20300-01) | Attached sheet 24 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-08400-01), (M355-01-730-20000-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-18800-01), (M355-01-740-22900-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-17400-01), (M355-01-750-22600-01) | |

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
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| 2008 LANCER Workshop Manual (CY0A) | 08 | CG1E08E2-CD (English) CG1S08E2-CD (Spanish) CG1F08E2-CD (French) CG1G08E2-CD (German) | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-17400-01), (M355-01-760-21200-01) | Attached sheet 27 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-08500-01), (M355-01-770-21900-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-18900-01), (M355-01-780-23800-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-18600-01), (M355-01-790-24600-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-93201-01) | Attached sheet 47 A |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-17200-01) | Attached sheet 32 |
| 2009 LANCER Workshop Manual (CY0A) | 09 | CG1E09E1-CD (English) CG1S09E1-CD (Spanish) CG1F09E1-CD (French) CG1G09E1-CD (German) CG1I09E1-CD (Italian) | Special Tools (M352-00-061-60100-01), (M355-00-580-23100-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-20400-01), (M355-01-640-31200-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-18200-01), (M355-01-650-29000-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-25600-01), (M355-01-660-35000-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-25300-01), (M355-01-670-35700-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-17500-01), (M355-01-680-26800-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-17200-01), (M355-01-690-26500-01) | |

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| 2009 LANCER Workshop Manual (CY0A) | 09 | CG1E09E1-CD (English) CG1S09E1-CD (Spanish) CG1F09E1-CD (French) CG1G09E1-CD (German) CG1I09E1-CD (Italian) | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-22100-01), (M355-01-700-30600-01) | Attached sheet 21 |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-22800-01), (M355-01-710-30300-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-17300-01), (M355-01-720-26900-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-17000-01), (M355-01-730-26600-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-23000-01), (M355-01-740-31500-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-22600-01), (M355-01-750-31200-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-19600-01), (M355-01-760-27800-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-18200-01), (M355-01-770-27500-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-23100-01), (M355-01-780-33500-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-23800-01), (M355-01-790-34300-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-93201-01) | Attached sheet 47 A |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-20200-01) | Attached sheet 32 |

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2010 LANCER Workshop Manual (CY0A) | 10 | CG1E10E1-CD (English) CG1S10E1-CD (Spanish) CG1F10E1-CD (French) CG1G10E1-CD (German) CG1I10E1-CD (Italian) | Special Tools (M352-00-061-60100-01), (M355-00-580-23100-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-20401-01), (M355-01-640-31201-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-18201-01), (M355-01-650-29001-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-25601-01), (M355-01-660-35001-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-25301-01), (M355-01-670-35701-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-17500-01), (M355-01-680-26800-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-17200-01), (M355-01-690-26500-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-22101-01), (M355-01-700-30600-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-22801-01), (M355-01-710-30300-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-17300-01), (M355-01-720-26900-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-17000-01), (M355-01-730-26600-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-23001-01), (M355-01-740-31500-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-22601-01), (M355-01-750-31200-01) | |

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2010 LANCER Workshop Manual (CY0A) | 10 | CG1E10E1-CD (English) CG1S10E1-CD (Spanish) CG1F10E1-CD (French) CG1G10E1-CD (German) CG1I10E1-CD (Italian) | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-19601-01), (M355-01-760-27801-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-18201-01), (M355-01-770-27501-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-23101-01), (M355-01-780-33501-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-23801-01), (M355-01-790-34301-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-171-06500-01) | Attached sheet 47 |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-20202-01) | Attached sheet 32 |
| 2010 LANCER EVOLUTION Workshop Manual (CZ4A) | 10 | CGEE09E1-CD (English) CGES09E1-CD (Spanish) CGEF09E1-CD (French) CGEG09E1-CD (German) CGEI09E1-CD (Italian) | Special Tools (M355-00-580-14502-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M355-01-640-44200-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M355-01-650-42700-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M355-01-660-47900-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M355-01-670-47600-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M355-01-680-22400-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M355-01-690-22100-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M355-01-700-24300-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M355-01-710-24000-01) | |

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|---|---|---|---|---|
| 2010 LANCER EVOLUTION Workshop Manual (CZ4A) | 10 | CGEE09E1-CD (English) CGES09E1-CD (Spanish) CGEF09E1-CD (French) CGEG09E1-CD (German) CGEI09E1-CD (Italian) | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M355-01-720-22500-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M355-01-730-22200-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M355-01-740-24100-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M355-01-750-24800-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-760-40500-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-770-40200-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-780-45400-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-790-46200-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-19401-01) | Attached sheet 31 |
| 2009 LANCER EVOLUTION Workshop Manual (CZ4A) | 09 | CGEE09E1-CD (English) CGES09E1-CD (Spanish) CGEF09E1-CD (French) CGEG09E1-CD (German) CGEI09E1-CD (Italian) | Special Tools (M355-00-580-14502-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M355-01-640-27100-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M355-01-650-25600-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M355-01-660-27500-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M355-01-670-27200-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M355-01-680-22400-01) | Attached sheet 21 |

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| 2009 LANCER EVOLUTION Workshop Manual (CZ4A) | 09 | CGEE09E1-CD (English) CGES09E1-CD (Spanish) CGEF09E1-CD (French) CGEG09E1-CD (German) CGEI09E1-CD (Italian) | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M355-01-690-22100-01) | Attached sheet 21 |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M355-01-700-24300-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M355-01-710-24000-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M355-01-720-22500-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M355-01-730-22200-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M355-01-740-24100-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M355-01-750-24800-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-760-23400-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-770-23100-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-780-25000-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-790-26800-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-19400-01) | Attached sheet 31 |
| 2009 LANCER SPORTBACK Workshop Manual (CX0A) | 09 | CG4E09E1-CD (English) CG4S09E1-CD (Spanish) CG4F09E1-CD (French) CG4G09E1-CD (German) CG4I09E1-CD (Italian) | Special Tools (M352-00-061-60100-01), (M355-00-580-23100-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-22600-01), (M355-01-640-33400-01) | Attached sheet 18 |

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| 2009 LANCER SPORTBACK Workshop Manual (CX0A) | 09 | CG4E09E1-CD (English) CG4S09E1-CD (Spanish) CG4F09E1-CD (French) CG4G09E1-CD (German) CG4I09E1-CD (Italian) | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-20100-01), (M355-01-650-31900-01) | Attached sheet 18 |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-22300-01), (M355-01-660-33800-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-22000-01), (M355-01-670-33500-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-17500-01), (M355-01-680-26800-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-17200-01), (M355-01-690-26500-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-21000-01), (M355-01-700-31700-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-21700-01), (M355-01-710-31400-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-17300-01), (M355-01-720-26900-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-17000-01), (M355-01-730-26600-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-22900-01), (M355-01-740-30400-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-21500-01), (M355-01-750-30100-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-21500-01), (M355-01-760-29000-01) | Attached sheet 25 |

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| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-22000-01), (M355-01-780-31300-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-22700-01), (M355-01-790-32100-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-93202-01) | Attached sheet 47 |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-20202-00) | Attached sheet 32 |
| 2010 LANCER SPORTBACK Workshop Manual (CX0A) | 10 | CG4E10E1-CD (English) CG4S10E1-CD (Spanish) CG4F10E1-CD (French) CG4G10E1-CD (German) CG4I10E1-CD (Italian) | Special Tools (M352-00-061-60100-01), (M355-00-580-23100-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-22601-01), (M355-01-640-33401-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-20101-01), (M355-01-650-31901-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-22301-01), (M355-01-660-33801-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-22001-01), (M355-01-670-33501-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-17500-01), (M355-01-680-26800-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-17200-01), (M355-01-690-26500-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-21001-01), (M355-01-700-31701-01) | |

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| 2010 LANCER SPORTBACK Workshop Manual (CX0A) | 10 | CG4E10E1-CD (English) CG4S10E1-CD (Spanish) CG4F10E1-CD (French) CG4G10E1-CD (German) CG4I10E1-CD (Italian) | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-21701-01), (M355-01-710-31401-01) | Attached sheet 21 |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-17300-01), (M355-01-720-26900-01) | Attached sheet 23 |
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| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-22901-01), (M355-01-740-30401-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-21501-01), (M355-01-750-30101-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-21501-01), (M355-01-760-29001-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-20101-01), (M355-01-770-29701-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-22001-01), (M355-01-780-31301-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-22701-01), (M355-01-790-32101-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-93202-03) | Attached sheet 47 A |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-20202-00) | Attached sheet 32 |

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|---|---|---|---|---|
| 2007 OUTLANDER Workshop Manual (CW0W) | 07 | CGXE07E1-CD (English) CGXS07E1-CD (Spanish) CGXF07E1-CD (French) CGXG07E1-CD (German) | Special Tools (M352-00-061-27000-01), (M355-00-580-12300-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-01100-01), (M355-01-640-02200-01) | Attached sheet 20 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-01800-01), (M355-01-650-02900-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-01800-01), (M355-01-660-02600-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-01500-01), (M355-01-670-02300-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-01200-01), (M355-01-680-02000-01) | Attached sheet 22 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-01900-01), (M355-01-690-02700-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-01600-01), (M355-01-700-02700-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-01300-01), (M355-01-710-02400-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-01000-01), (M355-01-720-02100-01) | Attached sheet 24 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-01700-01), (M355-01-730-02800-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-01400-01), (M355-01-740-02500-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-01100-01), (M355-01-750-02200-01) | |

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2007 OUTLANDER Workshop Manual (CW0W) | 07 | CGXE07E1-CD (English) CGXS07E1-CD (Spanish) CGXF07E1-CD (French) CGXG07E1-CD (German) | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-01100-01), (M355-01-760-02900-01) | Attached sheet 30 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-01800-01), (M355-01-770-02600-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-01500-01), (M355-01-780-02300-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-01200-01), (M355-01-790-02000-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-91000-01) | Attached sheet 47 A |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-08600-01) | Attached sheet 32 |
| 2008 OUTLANDER Workshop Manual (CW0W) | 08 | CGXE08E2-CD (English) CGXS08E2-CD (Spanish) CGXF08E2-CD (French) CGXG08E2-CD (German) | Special Tools (M352-00-061-27000-01), (M355-00-580-12301-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-14100-01), (M355-01-640-07700-01) | Attached sheet 19 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-13700-01), (M355-01-650-07400-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-13700-01), (M355-01-660-07100-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-13400-01), (M355-01-670-07800-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-12000-01), (M355-01-680-07500-01) | Attached sheet 22 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-12700-01), (M355-01-690-07200-01) | |

Attached sheet 1 (13/22)

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2008 OUTLANDER Workshop Manual (CW0W) | 08 | CGXE08E2-CD (English)<br>CGXS08E2-CD (Spanish)<br>CGXF08E2-CD (French)<br>CGXG08E2-CD (German) | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-12400-01), (M355-01-700-07200-01) | Attached sheet 22 |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-12100-01), (M355-01-710-07900-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-12800-01), (M355-01-720-07600-01) | Attached sheet 24 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-12500-01), (M355-01-730-07300-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-13300-01), (M355-01-740-07000-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-12900-01), (M355-01-750-07700-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-13000-01), (M355-01-760-07400-01) | Attached sheet 27 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-13700-01), (M355-01-770-07100-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-13400-01), (M355-01-780-07800-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-13100-01), (M355-01-790-07500-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-95400-01) | Attached sheet 47 A |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-08600-01) | Attached sheet 32 |

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2009 OUTLANDER Workshop Manual (CW0W) | 09 | CGXE09E1-CD (English) CGXS09E1-CD (Spanish) CGXF09E1-CD (French) CGXG09E1-CD (German) CGXI09E1-CD (Italian) | Special Tools (M352-00-061-32201-01), (M355-00-580-16702-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-21501-01), (M355-01-640-32301-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-19301-01), (M355-01-650-30801-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-21201-01), (M355-01-660-32701-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-21901-01), (M355-01-670-32401-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-16400-01), (M355-01-680-25700-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-16100-01), (M355-01-690-25400-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-20900-01), (M355-01-700-27601-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-20600-01), (M355-01-710-27301-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-16200-01), (M355-01-720-25800-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-16900-01), (M355-01-730-25500-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-21801-01), (M355-01-740-27401-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-20401-01), (M355-01-750-27101-01) | |

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2009 OUTLANDER Workshop Manual (CW0W) | 09 | CGXE09E1-CD (English) CGXS09E1-CD (Spanish) CGXF09E1-CD (French) CGXG09E1-CD (German) CGXI09E1-CD (Italian) | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-20401-01), (M355-01-760-28901-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-19301-01), (M355-01-770-28601-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-21901-01), (M355-01-780-30201-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-21601-01), (M355-01-790-31001-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-171-05400-01) | Attached sheet 47 |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-10504-01) | Attached sheet 32 |
| 2010 OUTLANDER Workshop Manual (CW0W) | 10 | CGXE10E1-CD (English) CGXS10E1-CD (Spanish) CGXF10E1-CD (French) CGXG10E1-CD (German) CGXI10E1-CD (Italian) | Special Tools (M352-00-061-32201-01), (M355-00-580-16703-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-31200-01), (M355-01-640-43100-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-29000-01), (M355-01-650-41600-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-31900-01), (M355-01-660-46800-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-30500-01), (M355-01-670-46500-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-23800-01), (M355-01-680-25700-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-26500-01), (M355-01-690-25400-01) | |

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| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2010 OUTLANDER Workshop Manual (CW0W) | 10 | CGXE10E1-CD (English) CGXS10E1-CD (Spanish) CGXF10E1-CD (French) CGXG10E1-CD (German) CGXI10E1-CD (Italian) | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-27600-01), (M355-01-700-36200-01) | Attached sheet 21 |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-28400-01), (M355-01-710-36900-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-16200-01), (M355-01-720-25800-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-16900-01), (M355-01-730-25500-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-28500-01), (M355-01-740-36000-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-26000-01), (M355-01-750-36700-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-30100-01), (M355-01-760-39700-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-29000-01), (M355-01-770-39400-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-30500-01), (M355-01-780-44300-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-30200-01), (M355-01-790-45100-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-171-05400-01) | Attached sheet 47 A |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-10504-01) | Attached sheet 32 |

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| Underneath Manual/Model | <M/Y> | Underneath Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2008 LANCER Workshop Manual (CY0A) | 08 | N/A | Special Tools (M352-00-061-12700-01), (M355-00-580-14501-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-18500-01), (M355-01-640-25900-01) | Attached sheet 19 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-08500-01), (M355-01-650-23400-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-18200-01), (M355-01-660-25300-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-18900-01), (M355-01-670-25000-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-08900-01), (M355-01-680-20200-01) | Attached sheet 22 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-08600-01), (M355-01-690-20900-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-17900-01), (M355-01-700-22100-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-17600-01), (M355-01-710-22800-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-08700-01), (M355-01-720-20300-01) | Attached sheet 24 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-08400-01), (M355-01-730-20000-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-18800-01), (M355-01-740-22900-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-17400-01), (M355-01-750-22600-01) | |

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| 2008 LANCER Workshop Manual (CY0A) | 08 | N/A | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-17400-01), (M355-01-760-21200-01) | Attached sheet 27 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-08500-01), (M355-01-770-21900-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-18900-01), (M355-01-780-23800-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-18600-01), (M355-01-790-24600-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-93201-01) | Attached sheet 47 |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-17200-01) | Attached sheet 32 |
| 2010 LANCER EVOLUTION Workshop Manual (CZ4A) | 10 | N/A | Special Tools (M355-00-580-14502-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M355-01-640-44200-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M355-01-650-42700-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M355-01-660-47900-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M355-01-670-47600-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M355-01-680-22400-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M355-01-690-22100-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M355-01-700-24300-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M355-01-710-24000-01) | |

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| Underneath Manual/Model | <M/Y> | Underneath Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2010 LANCER EVOLUTION Workshop Manual (CZ4A) | 10 | N/A | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M355-01-720-22500-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M355-01-730-22200-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M355-01-740-24100-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M355-01-750-24800-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-760-40500-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-770-40200-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-780-45400-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-790-46200-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-19401-01) | Attached sheet 31 |
| 2008 LANCER Workshop Manual (CY0A) | 08 | N/A | Special Tools (M352-00-061-12700-01), (M355-00-580-14501-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M352-02-680-10700-01) | Attached sheet 19 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M352-02-690-09600-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M352-02-700-09600-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M352-02-710-09300-01) | |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M355-01-640-12900-01) | Attached sheet 20 |

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| Underneath Manual/Model | <M/Y> | Underneath Pub. No. | Title (Info-ID) | Attached Sheet |
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| 2008 LANCER Workshop Manual (CY0A) | 08 | N/A | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M355-01-650-12600-01) | Attached sheet 20 |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M355-01-660-13400-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M355-01-670-13100-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M352-02-720-08900-01), (M355-01-680-09700-01) | Attached sheet 22 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M352-02-730-08600-01), (M355-01-690-09400-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M352-02-740-08300-01), (M355-01-700-09400-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M352-02-750-08000-01), (M355-01-710-09101-01) | |
| | | | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M352-02-760-08700-01), (M355-01-720-09800-01) | Attached sheet 24 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M352-02-770-08400-01), (M355-01-730-09500-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M352-02-780-09200-01), (M355-01-740-09200-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M352-02-790-08800-01), (M355-01-750-09900-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-800-09900-01), (M355-01-760-10400-01) | Attached sheet 27 |

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| Underneath Manual/Model | <M/Y> | Underneath Pub. No. | Title (Info-ID) | Attached Sheet |
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| 2008 LANCER Workshop Manual (CY0A) | 08 | N/A | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-810-09600-01), (M355-01-770-10101-01) | Attached sheet 27 |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M352-02-820-09300-01), (M355-01-780-10800-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M352-02-830-09000-01), (M355-01-790-12700-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M352-00-170-96500-01) | Attached sheet 47 A |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-10501-01) | Attached sheet 32 |

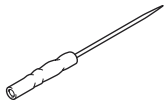
<UK (Japanese Domestic Specification)>

| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2008 LANCER EVOLUTION Workshop Manual (CZ4A) | 08 | N/A | Special Tools (M355-00-580-18900-01) | Attached sheet 17 |
| | | | Code No. C1011 Abnormality in FL Wheel Speed Sensor Signal (M355-01-640-15200-01) | Attached sheet 18 |
| | | | Code No. C101C Abnormality in FR Wheel Speed Sensor Signal (M355-01-650-15900-01) | |
| | | | Code No. C1027 Abnormality in RL Wheel Speed Sensor Signal (M355-01-660-17800-01) | |
| | | | Code No. C1032 Abnormality in RR Wheel Speed Sensor Signal (M355-01-670-17500-01) | |
| | | | Code No. C1014 Mutual Monitoring of FL Wheel Speed Sensor (M355-01-680-12700-01) | Attached sheet 21 |
| | | | Code No. C101F Mutual Monitoring of FR Wheel Speed Sensor (M355-01-690-12400-01) | |
| | | | Code No. C102A Mutual Monitoring of RL Wheel Speed Sensor (M355-01-700-14600-01) | |
| | | | Code No. C1035 Mutual Monitoring of RR Wheel Speed Sensor (M355-01-710-14300-01) | |

<UK (Japanese Domestic Specification)>

| Manual/Model | <M/Y> | Pub. No. | Title (Info-ID) | Attached Sheet |
|---|---|---|---|---|
| 2008 LANCER EVOLUTION Workshop Manual (CZ4A) | 08 | N/A | Code No. C1041 Abnormality in Periodical Signal for FL Wheel Speed Sensor (M355-01-720-12800-01) | Attached sheet 23 |
| | | | Code No. C1042 Abnormality in Periodical Signal for FR Wheel Speed Sensor (M355-01-730-12500-01) | |
| | | | Code No. C1043 Abnormality in Periodical Signal for RL Wheel Speed Sensor (M355-01-740-14400-01) | |
| | | | Code No. C1044 Abnormality in Periodical Signal for RR Wheel Speed Sensor (M355-01-750-14100-01) | |
| | | | Code No. C1046 FL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-760-13700-01) | Attached sheet 25 |
| | | | Code No. C1047 FR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-770-13400-01) | |
| | | | Code No. C1048 RL Wheel Speed Sensor Control Phase Time Exceeded (M355-01-780-15300-01) | |
| | | | Code No. C1049 RR Wheel Speed Sensor Control Phase Time Exceeded (M355-01-790-16100-01) | |
| | | | On-Vehicle Service Hydraulic Unit Check To be added before (M355-00-610-13800-01) | Attached sheet 31 |

Attached sheet 17

| Tool | Number | Name | Use |
|---|---|---|---|
|  MB991997 | MB991997 | ASC check harness | Voltage inspection at ASC-ECU terminals |
|  MB991348 | MB991348 | Test harness set | G and yaw rate sensor check |
|  MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at wiring harness or connector |

# TROUBLESHOOTING

## DIAGNOSIS TROUBLESHOOTING FLOW

M1355000900114

Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points .

## PRECAUTIONS FOR DIAGNOSIS

M1355009500168

1. ASC controls brake pressure by the assistance of ECU. The symptoms described in the chart below may occur during the normal ASC operation, and they do not indicate any sign of malfunction.

<Added>

| | | | |
|---|---|---|---|
|  | MB991709 | Wiring harness set | Output current measurement at wheel speed sensor |

Attached sheet 18 (1/5)

**⚠ CAUTION**

- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C, CAN Bus Diagnosis Table ).**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor, the G and yaw rate sensor and brake fluid pressure sensor (Refer to , and ).**

**OPERATION**

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**

ASC-ECU monitors the signals from each wheel speed sensor while the vehicle is being driven. If any fault below is found in these sensor signals, ASC-ECU will set the relevant diagnosis code.

- Irregular change in the wheel speed sensor signal
- Wheel speed sensor signal continuously indicates high value.

**PROBABLE CAUSES**

**Current trouble**

- Excessive gap between the wheel speed sensor and the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed sensor
- Adhesion of foreign materials on the wheel speed detection encoder
- Wheel bearing malfunction
- Malfunction of wheel speed sensor
- Damaged wiring harness and connectors
- External noise interference
- Improper installation of the wheel speed sensor
- Deformation of the wheel speed detection encoder
- ASC-ECU malfunction
- Disturbance of magnetisation pattern for wheel speed detection encoder
- The number of poles on the Magnetic encoder for wheel speed detection (N-pole and S-pole) is changed

**Past trouble**

- When diagnosis code No.C100A is also set, carry out diagnosis with particular emphasis on wiring harness and connector failures between ASC-ECU and the wheel speed sensor. For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Cope with Intermittent Malfunction ).
- When diagnosis code No.C100A is not set, the following conditions may be present:
  - Some wheels slip
  - Unstable vehicle attitude
  - External noise interference
  - Vehicle ran with the parking brake applied

## DIAGNOSIS PROCEDURE

**STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES :** Go to Step 3.

**NO :** Repair the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnosis table ). On completion, go to Step 2.

**STEP 2. Diagnosis code recheck after resetting CAN bus lines**

**Q: Is diagnosis code No. C1011 set?**

**YES :** Go to Step 3.

**NO :** This diagnosis is complete.

**STEP 3. M.U.T.-III diagnosis code**

Check that diagnosis code No. C100A is also set.

**Q: Is diagnosis code No. C100A also set?**

**YES :** Perform the diagnosis for diagnosis code No. C100A (Refer to ).

**NO :** Go to Step 4.

<New> STEP 6.

<Old> ~~STEP 4.~~ **Check for wheel speed sensor installation**

Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).

**Q: Is the check result normal?**

Attached sheet 18 (2/5)

Step 7. <New>

<Old> <Deleted>

YES : Go to Step 5.

NO : Reinstall the wheel speed sensor <FL> correctly (Refer to ). Then go to Step 16.

Step 7. <New>

<Old> <Old>

**STEP 5. Check for wheel speed sensor as a single unit**

**Q: Is the check result normal?**

YES : Go to Step 6.

NO : Replace the wheel speed sensor <FL> (Refer to ). Then go to Step 16.

<Old> Step 8. <New>

<Old> Step 11.

<Old> STEP 8. <New>

**STEP 6. Check for wheel bearing looseness**

*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness (Refer to GROUP 26 – On-vehicle Service ).*

**Q: Is the check result normal?**

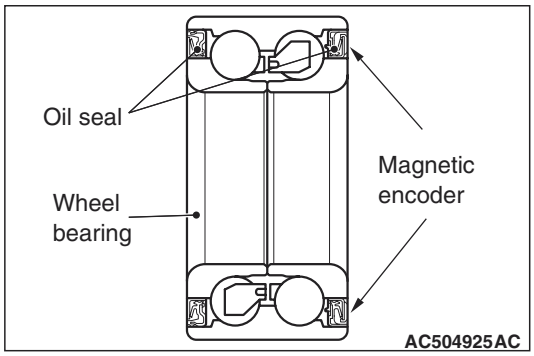
YES : Go to Step 7.

NO : Replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly ).

<Old> Step 9. <New>

<Old> STEP 9. <New>

**STEP 7. Check of wheel speed detection encoder**




Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**

YES : Go to Step 8.

Step 10. <New>

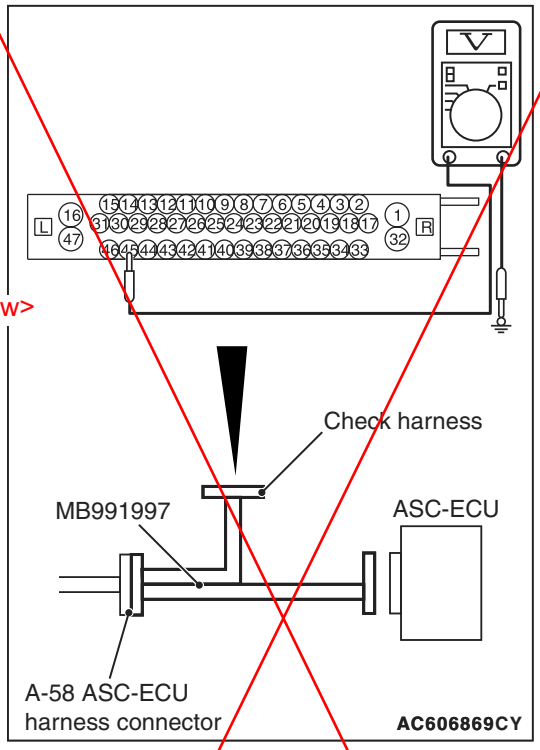
**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetisation pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction.

**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly ).

<New>

**STEP 7. Check for wheel speed sensor output current**

**STEP 8. Voltage measurement at the A-58 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the voltage at the special tool connector side.

*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*

(2) Turn the ignition switch to the ON position.

(3) Measure the voltage between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth and between the earth terminal No.46 and the body earth.

**OK: 1 V or less**

**Q: Is the check result normal?**

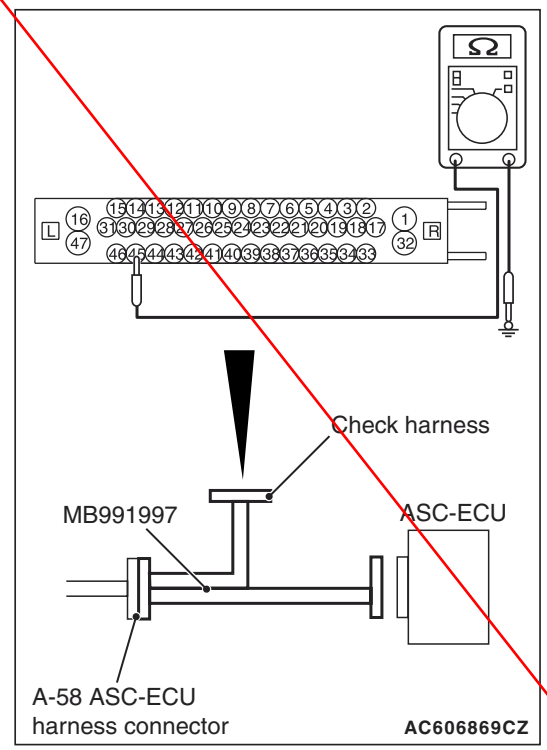
**YES :** Go to Step 9.

**NO (Not normal at the terminal No.45 or 46) :** Go to Step 10.

<Deleted>

Attached sheet 18 (3/5)

**STEP 9. Resistance measurement at A-58 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the resistance at the special tool connector side.

*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*

(2) Measure the resistance between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth and between the earth terminal No.46 and the body earth.

**OK: No continuity**

**Q: Is the check result normal?**
**YES :** Go to Step 12.
**NO (Not normal at the terminal No.45 or 46) :** Go to Step 10.

**STEP 10. Connector check: A-58 ASC-ECU connector, A-08 wheel speed sensor <FL> connector**

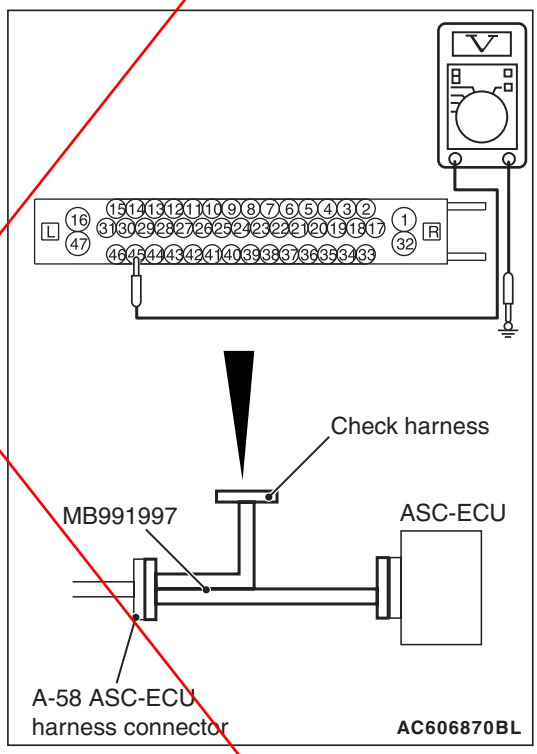
**Q: Is the check result normal?**
**YES :** Go to Step 11.
**NO :** Repair the defective connector. Then go to Step 16.

**STEP 11. Wiring harness check between A-58 ASC-ECU connector terminal No.45 and A-08 wheel speed sensor <FL> connector terminal No.1 and between A-58 ASC-ECU connector terminal No.46 and A-08 wheel speed sensor <FL> connector terminal No.2.**

- Check for short circuit in wheel speed sensor <FL> circuit.

**Q: Is the check result normal?**
**YES :** Go to Step 16.
**NO :** Repair the wiring harness. Then go to Step 16.

**STEP 12. Voltage measurement at the A-58 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the ASC-ECU-side connector and harness-side connector, and then measure the voltage at the special tool connector side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the wheel speed sensor circuit power supply terminal (signal terminal) No.45 and the body earth.

**OK: Approximately system voltage**

**Q: Is the check result normal?**
**YES :** Go to Step 13.
**NO :** Go to Step 15.

STEP 4. <New>

<Old>

~~**STEP 13.** **Connector check: A-58 ASC-ECU connector, A-08 wheel speed sensor <FL> connector**~~

**Q: Is the check result normal?**

**YES :** Go to ~~Step 14.~~ <Old> Step 5. <New>

**NO :** Repair the defective connector. Then go to ~~Step 16.~~ <Old> Step 12. <New>

<New>
STEP 5.
<Old>

~~**STEP 14.** **Wiring harness check between A-58 ASC-ECU connector terminal No.45 and A-08 wheel speed sensor <FL> connector terminal No.1 and between A-58 ASC-ECU connector terminal No.46 and A-08 wheel speed sensor <FL> connector terminal No.2.~~** <Deleted>

~~• Check for open circuit in wheel speed sensor <FL> circuit.~~

**Q: Is the check result normal?**

**YES :** Go to ~~Step 15.~~ <Old> Step 6. <New>

**NO :** Repair the wiring harness. Then go to ~~16.~~ <Old> 12. <New>

~~**STEP 15.** **Check whether the diagnosis code is reset.**~~ <Old>

(1) Erase the diagnosis code.

STEP 11. <New>

<Added>
From Attached sheet 18 (5/5)

(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1011 set?**

**YES :** Replace the hydraulic unit (ASC-ECU) (Refer to ). Then go to ~~Step 16.~~ <Old>

**NO :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

Step 12. <New>

<Old>

~~**STEP 16.** **Check whether the diagnosis code is reset.**~~

STEP 12. <New>

(1) Erase the diagnosis code.

(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1011 set?**

**YES :** Return to Step 1.

**NO :** This diagnosis is complete.

<Code No.C1011>

<Added>

To Attached sheet 18 (4/5)

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1011 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C101C>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C101C set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1027>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1027 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1032>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1032 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

**⚠ CAUTION**
- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor, the G and yaw rate sensor and brake fluid pressure sensor (Refer to , and ).**

**OPERATION**
- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**
ASC-ECU monitors the signals from each wheel speed sensor while the vehicle is being driven. If any fault below is found in these sensor signals, ASC-ECU will set the relevant diagnosis code.
- Irregular change in the wheel speed sensor signal
- Wheel speed sensor signal continuously indicates high value.

**PROBABLE CAUSES**

**Current trouble**
- Excessive gap between the wheel speed sensor and the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed sensor
- Adhesion of foreign materials on the wheel speed detection encoder
- Wheel bearing malfunction
- Malfunction of wheel speed sensor
- Damaged wiring harness and connectors
- External noise interference
- Improper installation of the wheel speed sensor
- Deformation of the wheel speed detection encoder
- ASC-ECU malfunction
- Disturbance of magnetisation pattern for wheel speed detection encoder
- The number of poles on the Magnetic encoder for wheel speed detection (N-pole and S-pole) is changed

**Past trouble**
- When diagnosis code No.C100A is also set, carry out diagnosis with particular emphasis on wiring harness and connector failures between ASC-ECU and the wheel speed sensor. For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Cope with Intermittent Malfunction ).
- When diagnosis code No.C100A is not set, the following conditions may be present:
  - Some wheels slip
  - Unstable vehicle attitude
  - External noise interference
  - Vehicle ran with the parking brake applied

## DIAGNOSTIC PROCEDURE

**STEP 1. M.U.T.-III CAN bus diagnostics**
Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**
**YES :** Go to Step 3.
**NO :** Repair the CAN bus lines. On completion, go to Step 2.

**STEP 2. Diagnosis code recheck after resetting CAN bus lines**

**Q: Is diagnosis code No. C1011 set?**
**YES :** Go to Step 3.
**NO :** This diagnosis is complete.

**STEP 3. M.U.T.-III diagnosis code**
Check that diagnosis code No. C100A is also set.

**Q: Is diagnosis code No. C100A also set?**
**YES :** Perform the diagnosis for diagnosis code No. C100A (Refer to ).
**NO :** Go to Step 4.

<Old> <New> STEP 6.

~~STEP 4.~~ **Check for wheel speed sensor installation**
Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).

**Q: Is the check result normal?**
**YES :** Go to ~~Step 5.~~ <Old> Step 7. <New>
**NO :** Reinstall the wheel speed sensor <FL> correctly (Refer to ).

Attached sheet 19 (2/5)

<Old> <Deleted>

~~STEP 5. Check for wheel speed sensor as a single unit~~

**Q: Is the check result normal?**
**YES :** Go to ~~Step 6.~~ <Old> Step 8. <New>
**NO :** Replace the wheel speed sensor <FL> (Refer to ).

<New> ~~STEP 8.~~

~~STEP 6. Check for wheel bearing looseness~~ <Old>

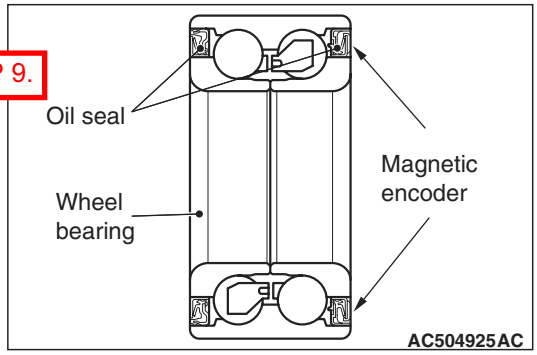
*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness (Refer to GROUP 26 – On-vehicle Service ).*

**Q: Is the check result normal?**
**YES :** Go to ~~Step 7.~~ <Old> Step 9. <New>
**NO :** Replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly ).

<Old>

~~STEP 7. Check of wheel speed detection encoder~~

<New> STEP 9.



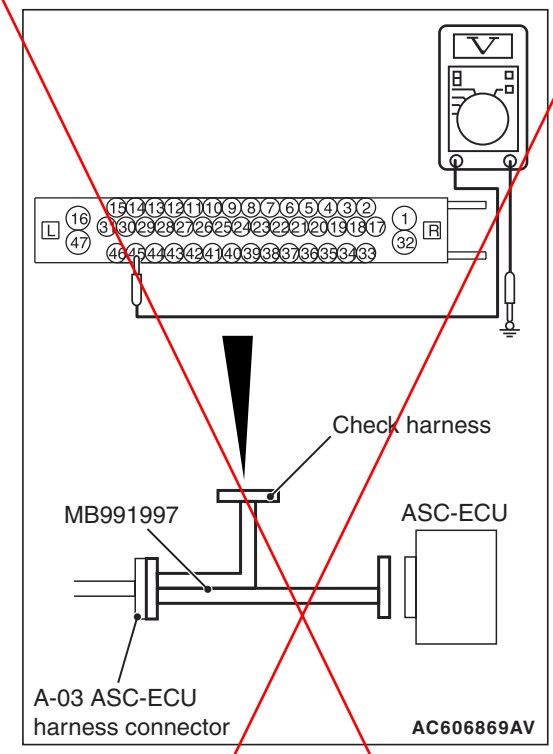

Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**
**YES :** Go to ~~Step 8.~~ <Old> Step 10. <New>
**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetisation pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction.
**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly ).

<New>

**STEP 7. Check for wheel speed sensor output current**

**STEP 8. Voltage measurement at the A-03 ASC-ECU connector**

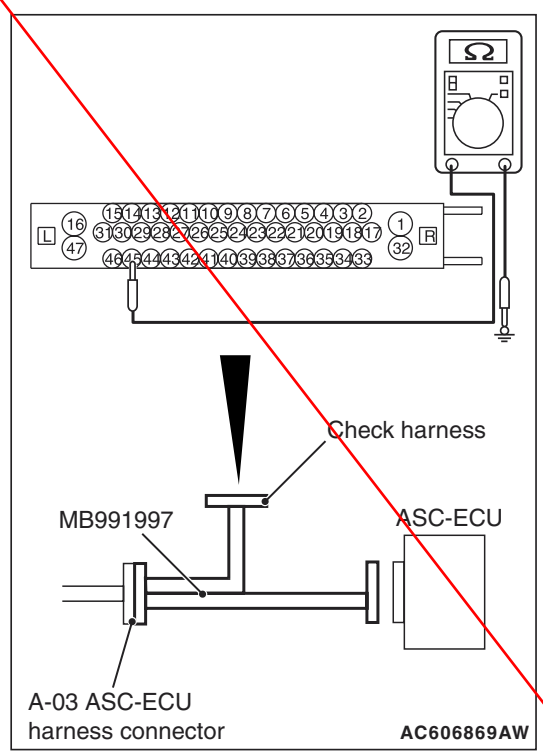



(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the voltage at the special tool connector side.
*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth and between the earth terminal No.46 and the body earth.

**OK: 1 V or less**

**Q: Is the check result normal?**
**YES :** Go to Step 9.
**NO (Not normal at the terminal No.45 or 46) :** Go to Step 10.

**STEP 9. Resistance measurement at A-03 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the resistance at the special tool connector side.

*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*

(2) Resistance between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth and between the earth terminal No.46 and the body earth.

**OK: No continuity**

**Q: Is the check result normal?**
**YES :** Go to Step 12.
**NO (Not normal at the terminal No.45 or 46) :** Go to Step 10.

**STEP 10. Connector check: A-03 ASC-ECU connector, A-12 wheel speed sensor <FL> connector**

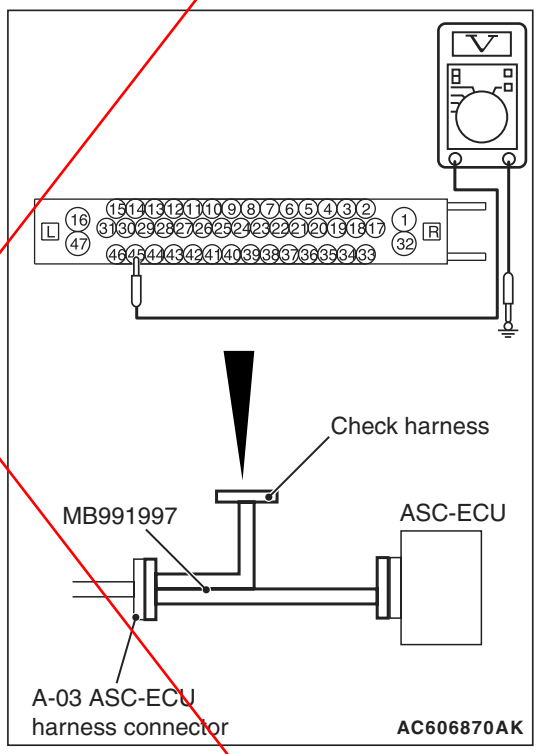
**Q: Is the check result normal?**
**YES :** Go to Step 11.
**NO :** Repair the defective connector.

**STEP 11. Wiring harness check between A-03 ASC-ECU connector terminal No.45 and A-12 wheel speed sensor <FL> connector terminal No.1, and between A-03 ASC-ECU connector terminal No.46 and A-12 wheel speed sensor <FL> connector terminal No.2**

- Check for short circuit in wheel speed sensor <FL> circuit.

**Q: Is the check result normal?**
**YES :** Replace the wheel speed sensor <FL> (Refer to ).
**NO :** Repair the wiring harness.

**STEP 12. Voltage measurement at the A-03 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the ASC-ECU-side connector and harness-side connector, and then measure the voltage at the special tool connector side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the wheel speed sensor circuit power supply terminal (signal terminal) No.45 and the body earth.

**OK: Approximately battery voltage**

**Q: Is the check result normal?**
**YES :** Go to Step 13.
**NO :** Go to Step 15.

Attached sheet 19 (4/5)

STEP 4. <New>

<Old>

~~STEP 13.~~ **Connector check: A-03 ASC-ECU connector, A-12 wheel speed sensor <FL> connector**

**Q: Is the check result normal?**

**YES :** Go to ~~Step 14.~~ <Old> Step 5. <New>

**NO :** Repair the defective connector.

<Old>

~~STEP 14.~~ **Wiring harness check between A-03 ASC-ECU connector terminal No.45 and A-12 wheel speed sensor <FL> connector terminal No.1 and between A-03 ASC-ECU connector terminal No.46 and A-12 wheel speed sensor <FL> connector terminal No.2.** <Deleted>

- ~~Check for open circuit in wheel speed sensor <FL> circuit.~~

**Q: Is the check result normal?**

STEP 5. <New>

**YES :** Go to ~~Step 15.~~ <Old> Step 6. <New>

**NO :** Repair the wiring harness.

<Old>

~~STEP 15.~~ **Check whether the diagnosis code is reset.** STEP 11. <New>

Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1011 set?**

**YES :** Replace the ASC-ECU (Refer to ).

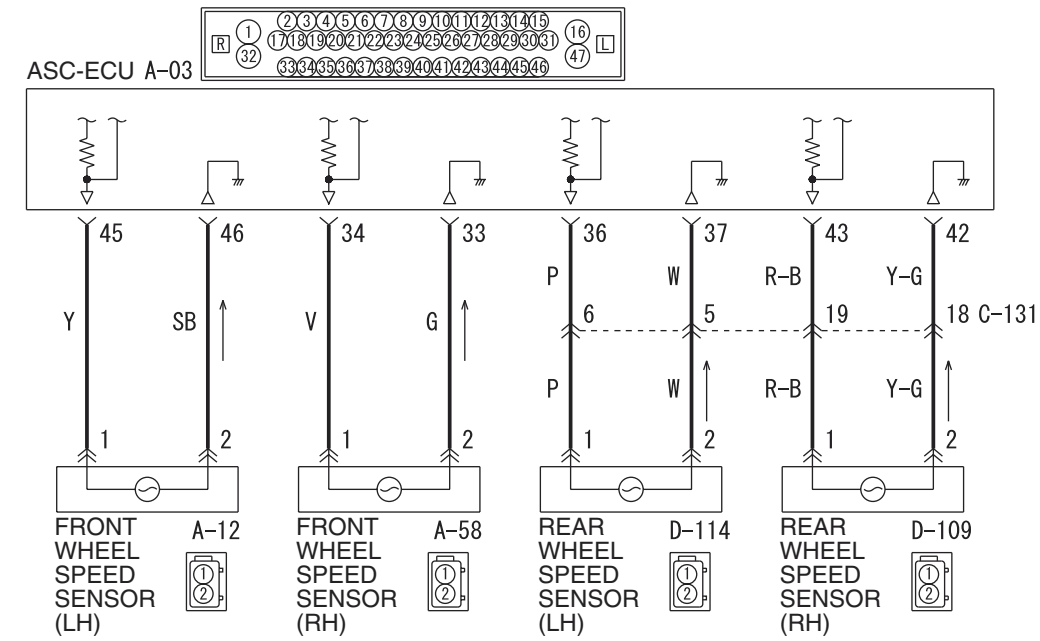
**NO :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

<Added>

From Attached sheet 19 (5/5)

## Code No. C101C Abnormality in FR wheel speed sensor signal

**Wheel Speed Sensor Circuit**




Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W7G35E000A

To Attached sheet 19 (4/5)

<Added>

<Code No.C1011>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1011 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C101C>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C101C set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1027>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1027 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1032>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1032 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

**⚠ CAUTION**
**If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C, Trouble code diagnosis ).**

**OPERATION**
- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**
ASC-ECU monitors the signals from each wheel speed sensor while the vehicle is being driven. If any fault below is found in these sensor signals, ASC-ECU will set the relevant diagnosis code.
- Irregular change in the wheel speed sensor signal
- Wheel speed sensor signal continuously indicates high value.

**PROBABLE CAUSES**

**Current trouble**
- Excessive gap between the wheel speed sensor and the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed sensor
- Adhesion of foreign materials on the wheel speed detection encoder
- Wheel bearing malfunction
- Malfunction of wheel speed sensor
- Damaged wiring harness and connectors
- External noise interference
- Improper installation of the wheel speed sensor
- Deformation of the wheel speed detection encoder
- ASC-ECU malfunction
- Disturbance of magnetisation pattern for wheel speed detection encoder

**Past trouble**
- When the diagnosis code No. C100A is also set, carry out diagnosis with particular emphasis on wiring harness and connector failures between ASC-ECU and the wheel speed sensor. For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Cope with Intermittent Malfunction ).
- When the diagnosis code No. C100A is not set, the following conditions may be present:
  - Right or/and left wheels are rotated.
  - Unstable vehicle attitude
  - External noise interference
  - Vehicle ran with the parking brake applied.

## DIAGNOSTIC PROCEDURE

**STEP 1. M.U.T.-III CAN bus diagnostics**
Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**
**YES :** Go to Step 3.
**NO :** Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting ). On completion, go to Step 2.

**STEP 2. Diagnosis code recheck after resetting CAN bus lines**

**Q: Is the diagnosis code No. C1011 set?**
**YES :** Go to Step 3.
**NO :** This diagnosis is complete.

**STEP 3. M.U.T.-III diagnosis code**
Check that the diagnosis code No. C100A is also set.

**Q: Is the diagnosis code No. C100A also set?**
**YES :** Perform the diagnosis for the diagnosis code No. C100A (Refer to P.35C-10).
**NO :** Go to Step 4.

<New> STEP 6.
<Old>
~~**STEP 4. Check for wheel speed sensor installation**~~
Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).

**Q: Is the check result normal?**
**YES :** Go to ~~Step 5.~~ <Old> Step 7. <New>
**NO :** Reinstall the wheel speed sensor correctly.
<Old>

**STEP 7. Check for wheel speed sensor output current**
<New>

~~**STEP 5. Check for wheel speed sensor as a single unit**~~

**Q: Is the check result normal?**
**YES :**

Attached sheet 20 (2/5)

Step 8. <New>

Go to ~~Step 6.~~ <Old> <Deleted>

**NO :** Replace the wheel speed sensor.

<Old> ~~STEP 8.~~ STEP 8. <New>

### ~~STEP 6.~~ STEP 6. Check for wheel bearing looseness

*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness (Refer to GROUP 26 – On-vehicle Service ).*

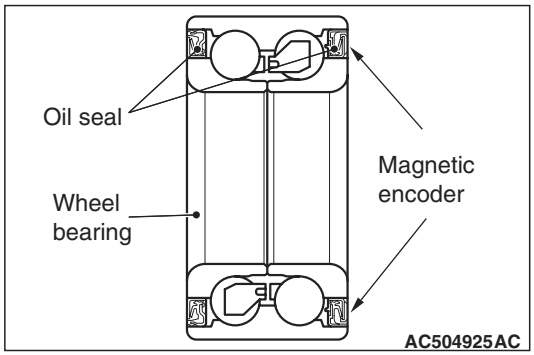
**Q: Is the check result normal?**

**YES :** Go to ~~Step 7.~~ <Old> Step 9. <New>

**NO :** Replace the wheel bearing.

<Old> ~~STEP 9.~~ STEP 9. <New>

### ~~STEP 7.~~ STEP 7. Check of wheel speed detection encoder



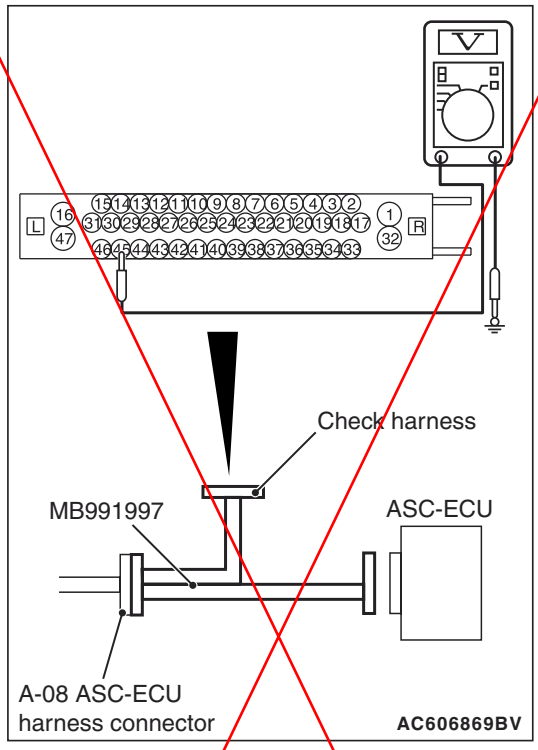

Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**

**YES :** Go to ~~Step 8.~~ <Old> Step 10. <New>

**NO :** Remove the foreign materials and clean the encoder so as not to disturb the magnetisation pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. When the encoder is deformed, replace the wheel bearing.

### STEP 8. Voltage measurement at the A-08 ASC-ECU connector




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the voltage at the special tool connector side.

*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*

(2) Turn the ignition switch to the ON position.

(3) Measure the voltage between the wheel speed sensor power supply terminal (signal terminal) No. 45/the earth terminal No. 46 and the body earth.

**OK: 0 V**

**Q: Is the check result normal?**

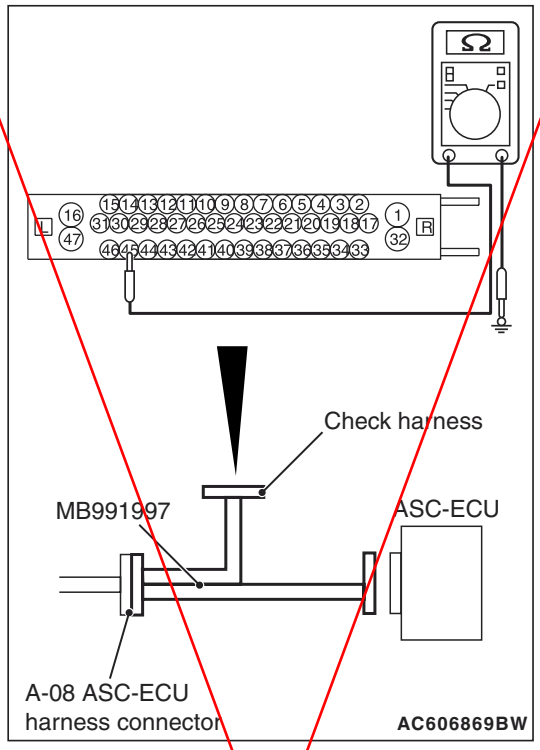
**YES :** Go to Step 9.

**NO (Not normal at the terminal No. 45 or 46) :** Go to Step 10.

Attached sheet 20 (3/5)

<Deleted>

**STEP 9. Resistance measurement at A-08 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the resistance at the special tool connector side.

*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*

(2) Resistance between the wheel speed sensor power supply terminal (signal terminal) No. 45/ the earth terminal No. 46 and the body earth

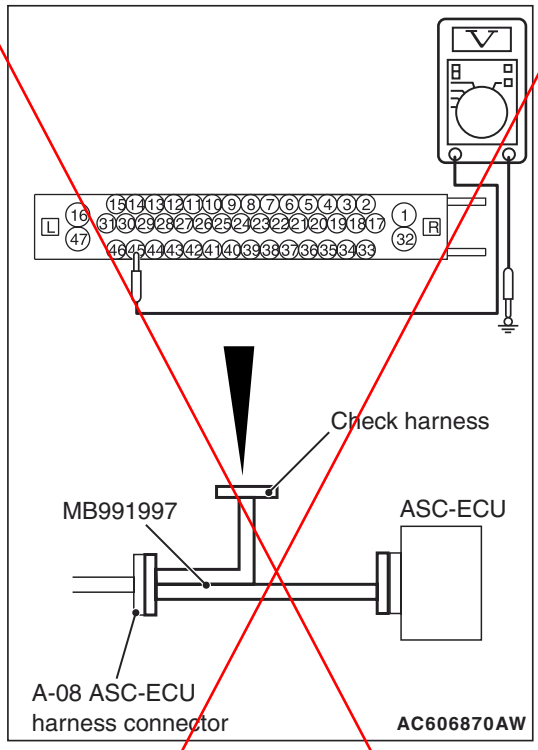
**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**
**YES :** Go to Step 11.
**NO (Not normal at the terminal No. 45 or 46) :** Go to Step 10.

**STEP 10. Connector check: A-08 ASC-ECU connector, A-10 wheel speed sensor <FL> connector**

**Q: Is the check result normal?**
**YES :** The short circuit in the wheel speed sensor <FL> circuit may be present. Repair the wiring harness between the A-08 ASC-ECU connector terminal No. 45/46 and the A-10 wheel speed sensor <FL> connector terminal No. 1/2.
**NO :** Repair the defective connector.

**STEP 11. Voltage measurement at the A-08 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the ASC-ECU-side connector and harness-side connector, and then measure the voltage at the special tool connector side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the wheel speed sensor circuit power supply terminal (signal terminal) No. 45 and the body earth.

**OK: Approximately battery voltage**

**Q: Is the check result normal?**
**YES :** Go to Step 12.
**NO :** Replace the ASC-ECU.

<Old> STEP 4. <New>

**STEP 12. Connector check: A-08 ASC-ECU connector, A-10 wheel speed sensor <FL> connector**

**Q: Is the check result normal?**
**YES :** Go to Step 13. <Old> Step 5. <New>
**NO :** Repair the defective connector.

<Old> STEP 5. <New>

**STEP 13. Wiring harness check between A-08 ASC-ECU connector terminal No. 45/46 and A-10 wheel speed sensor <FL> connector terminal No. 1/2**

- Check for open circuit in wheel speed sensor <FL> circuit.

**Q: Is the check result normal?** <Deleted>

Attached sheet 20 (4/5)

<Old> ~~Step 14.~~ <New> Step 6.

**YES :** Go to ~~Step 14.~~ Step 6.
**NO :** Repair the wiring harness.

**Q: Is the diagnosis code No. C1011 set?**
**YES :** Replace the ASC-ECU.
**NO :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

<Old> ~~**STEP 14.**~~ <New> **STEP 11.** **Check whether the diagnosis code is reset.**

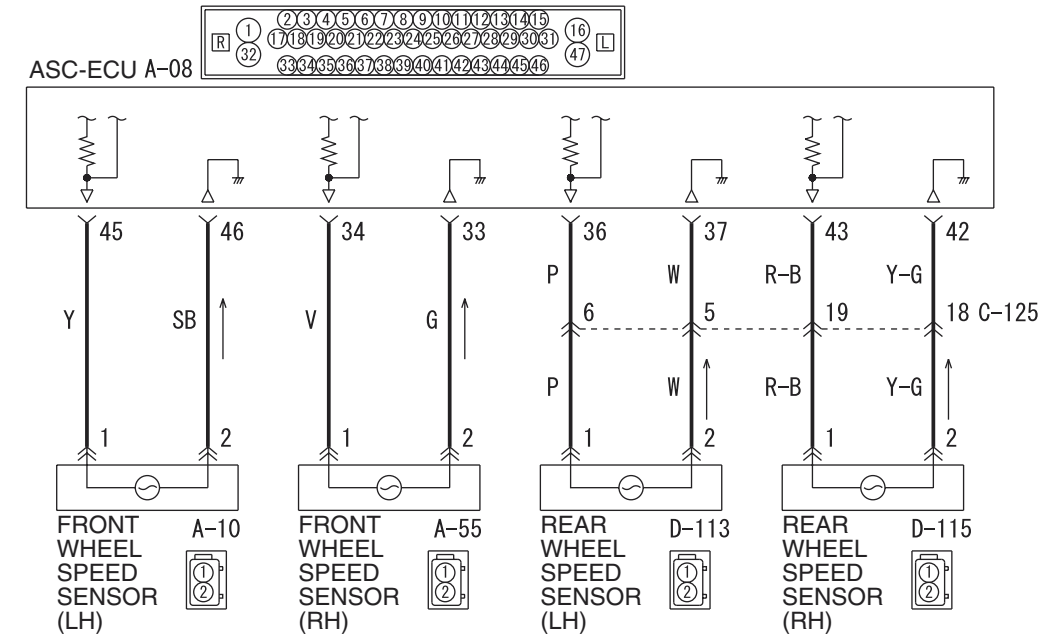
Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

<Added> From Attached sheet 20 (5/5)

## Code No. C101C Abnormality in FR wheel speed sensor signal

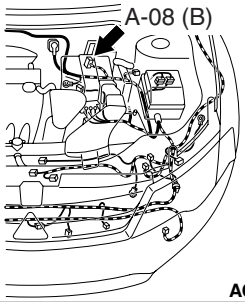
**Wheel Speed Sensor Circuit**




Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

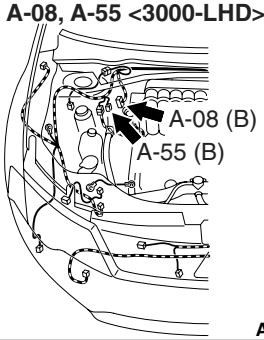
W6G35X000A

**Connector: A-08 <2400>**




AC607199AD

**Connectors: A-08, A-55 <3000-LHD>**




AC607202AD

To Attached sheet 20 (5/6)

<Added>

<Code No.C1011>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1011 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C101C>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C101C set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1027>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1027 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1032>

**STEP 10. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1032 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 11.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

**YES :** Go to Step 5.
**NO :** Reinstall the wheel speed sensor <FL> correctly (Refer to ). Then go to <Old> ~~Step 9.~~ <New> Step 5.

<Old>

~~**STEP 5. Check for wheel speed sensor as a single unit**~~
~~Refer to .~~

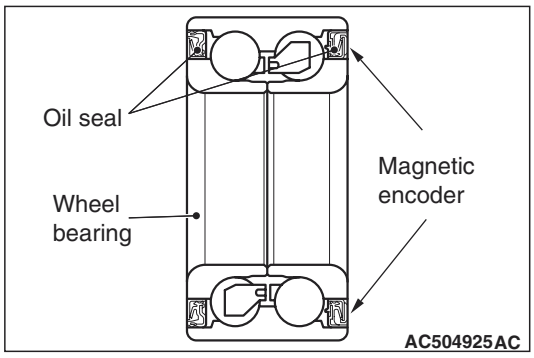
**Q: Is the check result normal?**
**YES :** Go to Step 6.
**NO :** Replace the wheel speed sensor <FL> (Refer to ). Then go to Step 9.

**STEP 6. Check for wheel bearing looseness**

*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness (Refer to GROUP 26 – On-vehicle Service ).*

**Q: Is the check result normal?**
**YES :** Go to Step 7.
**NO :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

**STEP 7. Check of wheel speed detection encoder**




Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**

**YES :** Go to Step 8.
**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetisation pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction.
**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

**~~STEP 8.~~ Check whether the diagnosis code is reset.** <Old> STEP 9. <New>
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1014 set?**
**YES :** Replace the hydraulic unit (ASC-ECU) (Refer to ). Then go to <Old> ~~Step 9.~~ <New> Step 10.
**NO :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

**~~STEP 9.~~ Check whether the diagnosis code is reset.** <Old> STEP 10. <New>
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1014 set?**
**YES :** Return to Step 1.
**NO :** This diagnosis is complete.

<New>
**STEP 5. Check for wheel speed sensor output current**

<Added>
From Attached sheet 21 (2/2)

To Attached sheet 21 (1/2)

<Added>

<Code No.C1014>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1014 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C101F>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C101F set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C102A>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C102A set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1035>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1035 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

**YES :** Go to Step 5.
**NO :** Reinstall the wheel speed sensor <FL> correctly (Refer to ).

<Old>

**STEP 5. Check for wheel speed sensor as a single unit**
Refer to .

**Q: Is the check result normal?**
**YES :** Go to Step 6.
**NO :** Replace the wheel speed sensor <FL> (Refer to ).

**STEP 6. Check for wheel bearing looseness**

*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness (Refer to GROUP 26 – On-vehicle Service ).*

**Q: Is the check result normal?**
**YES :** Go to Step 7.
**NO :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

<Added>

From Attached sheet 22 (2/2)

STEP 9.

<New>

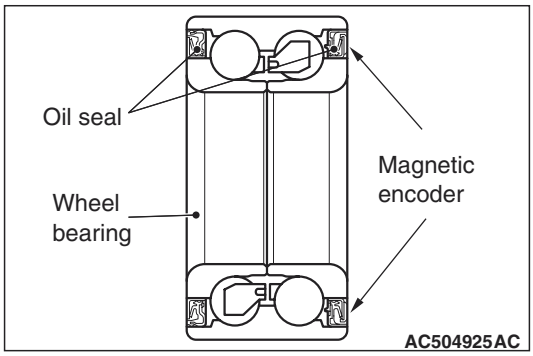
<Old>

**STEP 8. Check whether the diagnosis code is reset.**
Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1014 set?**
**YES :** Replace the ASC-ECU (Refer to ).
**NO :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

**STEP 7. Check of wheel speed detection encoder**




Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**
**YES :** Go to Step 8.
**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetisation pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction.
**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

<New>

**STEP 5. Check for wheel speed sensor output current**

## Code No. C101F Mutual monitoring of FR wheel speed sensor

**⚠ CAUTION**
- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor, the G and yaw rate sensor and brake fluid pressure sensor (Refer to , and ).**

**OPERATION**
- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.

To Attached sheet 22 (1/2)

<Added>

<Code No.C1014>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1014 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C101F>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C101A set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C102A>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C102A set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1035>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1035 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

Attached sheet 23 (1/4)

**STEP 9. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is the diagnosis code No. C1035 set?**
**YES :** Return to Step 1.
**NO :** This diagnosis is complete.

## Code No. C1041 Abnormality in periodical signal for FL wheel speed sensor

**⚠ CAUTION**
- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C, CAN Bus Diagnosis Table ).**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor, the G and yaw rate sensor and brake fluid pressure sensor (Refer to , and ).**

**OPERATION**
- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**
ASC-ECU monitors the signals from each wheel speed sensor while the vehicle is being driven. If any periodical drop is found in these sensor signals, ASC-ECU will set the relevant diagnosis code.

**PROBABLE CAUSES**
- Wheel bearing malfunction
- Deformation of the wheel speed detection encoder
- Missing teeth of the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed detection encoder
- ASC-ECU malfunction
- The number of poles on the Magnetic encoder for wheel speed detection (N-pole and S-pole) is changed

## DIAGNOSIS PROCEDURE

**STEP 1. M.U.T.-III CAN bus diagnostics**
Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**
**YES :** Go to Step 3.
**NO :** Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting ). On completion, go to Step 2.

**STEP 2. Diagnosis code recheck after resetting CAN bus lines**

**Q: Is diagnosis code No.C1041 set?**
**YES :** Go to Step 3.
**NO :** This diagnosis is complete.

<Old> ~~**STEP 3.**~~ **Check for wheel bearing looseness**

*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness (Refer to GROUP 26 – On-vehicle Service ).*

**Q: Is the check result normal?**
**YES :** Go to ~~Step 4.~~ <Old> Step 7. <New>
**NO :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

STEP 6. <New>

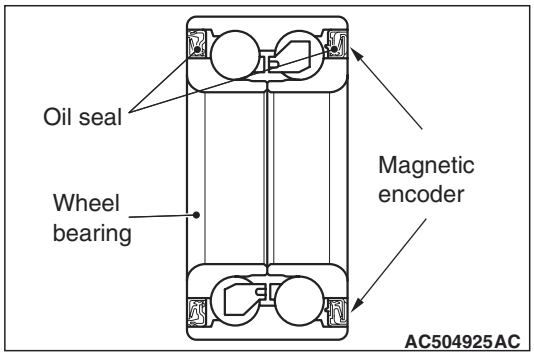
<Added>

From Attached sheet 23 (2/4), (3/4)

STEP 7. <New>

Attached sheet 23 (2/4)

**STEP 4. Check of wheel speed detection encoder** <Old>




Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**

**YES :** Go to Step 5. <Old> Step 8. <New>

**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetisation pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. When the encoder is deformed, replace the wheel bearing.

**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

**STEP 5. Check whether the diagnosis code is reset.** <Old>

STEP 9. <New>

(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

Step 10. <New>

**Q: Is diagnosis code No. C1041 set?**

**YES :** Replace the hydraulic unit (ASC-ECU) (Refer to ). Then go to Step 6. <Old>

**NO :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

<Old>

**STEP 6. Check whether the diagnosis code is reset.**

STEP 10. <New>

(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1041 set?**

**YES :** Return to Step 1.

**NO :** This diagnosis is complete.

<Added>

From Attached sheet 23 (4/4)

<Code No.C1041>

<Added>

To Attached sheet 23 (1/4)

**STEP 3. M.U.T.- diagnosis code**
Check that diagnosis code No.C100A is also set.
**Q:Is diagnosis code No.C100A is also set?**
**YES:** Perform the diagnosis for diagnosis code No.C100A.
**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**
Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 5.
**NO:** Reinstall the wheel speed sensor <FL> correctly. Then go to Step 5.

**STEP 5. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Replace the wheel speed sensor <FL>. Then go to Step 9.

To Attached sheet 23 (1/4)

<Added>

<Code No.C1042>

**STEP 3. M.U.T.- diagnosis code**
Check that diagnosis code No.C1015 is also set.
**Q:Is diagnosis code No.C1015 is also set?**
**YES:** Perform the diagnosis for diagnosis code No.C1015.
**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**
Check how the wheel speed sensor <FR> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 5.
**NO:** Reinstall the wheel speed sensor <FR> correctly. Then go to Step 5.

**STEP 5. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Replace the wheel speed sensor <FR>. Then go to Step 9.

<Code No.C1043>

**STEP 3. M.U.T.- diagnosis code**
Check that diagnosis code No.C1020 is also set.
**Q:Is diagnosis code No.C1020 is also set?**
**YES:** Perform the diagnosis for diagnosis code No.C1020.
**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**
Check how the wheel speed sensor <RL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 5.
**NO:** Reinstall the wheel speed sensor <RL> correctly. Then go to Step 5.

**STEP 5. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Replace the wheel speed sensor <RL>. Then go to Step 9.

<Code No.C1044>

**STEP 3. M.U.T.- diagnosis code**
Check that diagnosis code No.C102B is also set.
**Q:Is diagnosis code No.C102B is also set?**
**YES:** Perform the diagnosis for diagnosis code No.C102B.
**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**
Check how the wheel speed sensor <RR> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 5.
**NO:** Reinstall the wheel speed sensor <RR> correctly. Then go to Step 5.

**STEP 5. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Replace the wheel speed sensor <RR>. Then go to Step 9.

To Attached sheet 23 (2/4)

<Added>

<Code No.C1041>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1041 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1042>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1042 set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1043>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1043 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1044>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1044 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

Attached sheet 24 (1/4)

## Code No. C1041 Abnormality in periodical signal for FL wheel speed sensor

**⚠ CAUTION**

From Attached sheet 24 (2/4), (3/4)

- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor, the G and yaw rate sensor and brake fluid pressure sensor (Refer to , and ).**

**OPERATION**

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**

ASC-ECU monitors the signals from each wheel speed sensor while the vehicle is being driven. If any periodical drop is found in these sensor signals, ASC-ECU will set the relevant diagnosis code.

**PROBABLE CAUSES**

- Wheel bearing malfunction
- Deformation of the wheel speed detection encoder
- Missing teeth of the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed detection encoder
- ASC-ECU malfunction
- The number of poles on the Magnetic encoder for wheel speed detection (N-pole and S-pole) is changed

## DIAGNOSTIC PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

<Added>

**YES :** Go to Step 3.
**NO :** Repair the CAN bus lines. On completion, go to Step 2.

### STEP 2. Diagnosis code recheck after resetting CAN bus lines

**Q: Is diagnosis code No.C1041 set?**
**YES :** Go to Step 3.
**NO :** This diagnosis is complete.

<Old>

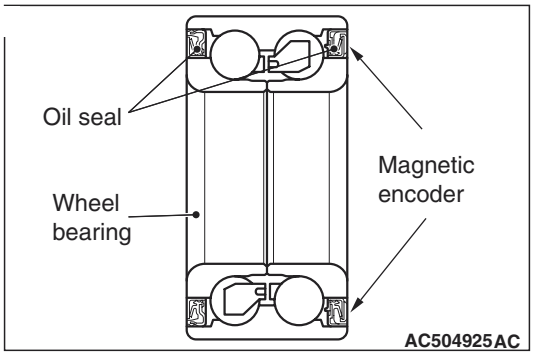
### ~~STEP 3.~~ Check for wheel bearing looseness

*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness (Refer to GROUP 26 – On-vehicle Service ).*

**Q: Is the check result normal?**
**YES :** Go to ~~Step 4.~~ <Old> Step 7. <New>
**NO :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

### ~~STEP 4.~~ Check of wheel speed detection encoder

<Old>




Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**
**YES :** Go to ~~Step 5.~~ <Old> Step 8. <New>
**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetisation pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. When the encoder is deformed, replace the wheel bearing.
**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

<New> STEP 6.

<New> STEP 7.

Attached sheet 24 (2/4)

STEP 9. <New>

<Old>

~~**STEP 5.**~~ **Check whether the diagnosis code is reset.**

Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1041 set?**

**YES :** Replace the ASC-ECU (Refer to ).

**NO :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

<Added>

From Attached sheet 24 (4/4)

<Code No.C1041>

<Added>

To Attached sheet 24 (1/4)

**STEP 3. M.U.T.- diagnosis code**

Check that diagnosis code No.C100A is also set.

**Q:Is diagnosis code No.C100A is also set?**

**YES:** Perform the diagnosis for diagnosis code No.C100A.

**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**

Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).

**Q:Is the check result normal?**

**YES:** Go to Step 5.

**NO:** Reinstall the wheel speed sensor <FL> correctly.

**STEP 5. Check for wheel speed sensor output current**

**Q:Is the check result normal?**

**YES:** Go to Step 6.

**NO:** Replace the wheel speed sensor <FL>.

To Attached sheet 24 (1/4)

<Added>

<Code No.C1042>

**STEP 3. M.U.T.- diagnosis code**
Check that diagnosis code No.C1015 is also set.
**Q:Is diagnosis code No.C1015 is also set?**
**YES:** Perform the diagnosis for diagnosis code No.C1015.
**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**
Check how the wheel speed sensor <FR> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 5.
**NO:** Reinstall the wheel speed sensor <FR> correctly.

**STEP 5. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Replace the wheel speed sensor <FR>.

<Code No.C1043>

**STEP 3. M.U.T.- diagnosis code**
Check that diagnosis code No.C1020 is also set.
**Q:Is diagnosis code No.C1020 is also set?**
**YES:** Perform the diagnosis for diagnosis code No.C1020.
**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**
Check how the wheel speed sensor <RL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 5.
**NO:** Reinstall the wheel speed sensor <RL> correctly.

**STEP 5. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Replace the wheel speed sensor <RL>.

<Code No.C1044>

**STEP 3. M.U.T.- diagnosis code**
Check that diagnosis code No.C102B is also set.
**Q:Is diagnosis code No.C102B is also set?**
**YES:** Perform the diagnosis for diagnosis code No.C102B.
**NO:** Go to Step4.

**STEP 4. Check for wheel speed sensor installation**
Check how the wheel speed sensor <RR> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 5.
**NO:** Reinstall the wheel speed sensor <RR> correctly.

**STEP 5. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Replace the wheel speed sensor <RR>.

To Attached sheet 24 (2/4)

<Added>

<Code No.C1041>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1041 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1042>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1042 set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1043>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1043 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

<Code No.C1044>

**STEP 8. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1044 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 9.
**NO:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).

Attached sheet 25 (1/5)

**⚠ CAUTION**

- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C, CAN Bus Diagnosis Table ).**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor, the G and yaw rate sensor and brake fluid pressure sensor (Refer to , and ).**

**OPERATION**

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**

This diagnosis code is set if any malfunction below is found:

- When the brake fluid pressure is decreased for a long time.
- When the brake fluid pressure is held for a long time.

**PROBABLE CAUSES**

- Damaged wiring harness and connectors
- External noise interference
- Malfunction of wheel speed sensor
- ASC-ECU malfunction
- Excessive gap between the wheel speed sensor and the magnetic encoder for wheel speed detection
- Adhesion of foreign materials on the wheel speed sensor
- Adhesion of foreign materials on the magnetic encoder for wheel speed detection
- Wheel bearing malfunction
- Improper installation of the wheel speed sensor
- Deformation of the magnetic encoder for wheel speed detection
- Disturbance of magnetization pattern for magnetic encoder for wheel speed detection
- Missing teeth of the magnetic encoder for wheel speed detection

## DIAGNOSIS PROCEDURE

**STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**
**YES :** Go to Step 3.
**NO :** Repair the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnosis table ). On completion, go to Step 2.

**STEP 2. Diagnosis code recheck after resetting CAN bus lines**

**Q: Is diagnosis code No.C1046 set?**
**YES :** Go to Step 3.
**NO :** This diagnosis is complete.

**STEP 3. M.U.T.-III diagnosis code**

Check that the diagnosis codes No.C100A, C1011, C1014, and C1041 are also set.

**Q: Are the diagnosis codes No.C100A, C1011, C1014, and C1041 also set?**
**YES :** Carry out the diagnosis for the relevant diagnosis codes ~~and then go to Step 5.~~ <Deleted>
**NO :** Go to Step 4.

**STEP 4. M.U.T.-III data list**

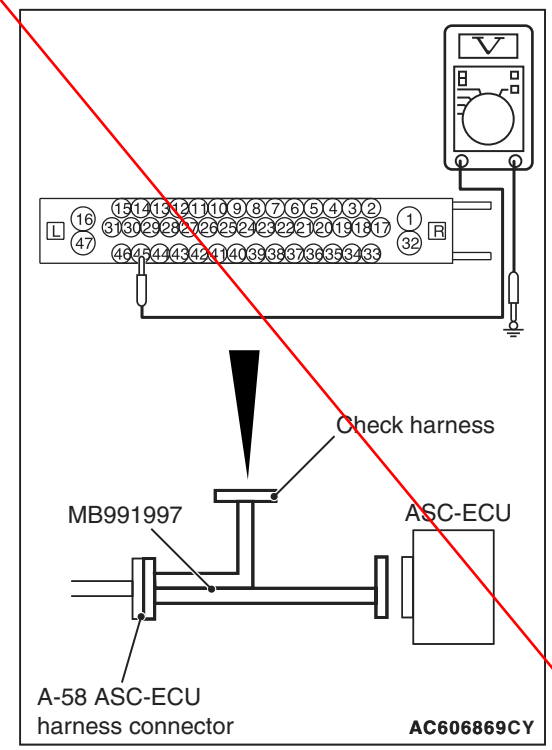
Check the following service data (Refer to ).

- Item No.01: FL wheel speed sensor

**Q: Is the check result normal?**
**YES :** Go to ~~Step 16.~~ <Old> Step 11. <New>
**NO :** Go to Step 5.

<Deleted> Attached sheet 25 (2/5)

**STEP 5. Voltage measurement at the A-58 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the voltage at the special tool connector side.

*NOTE: Do not connect the special tool to ASC-ECU.*

(2) Turn the ignition switch to the ON position.

(3) Measure the voltage between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth and between the earth terminal No.46 and the body earth.

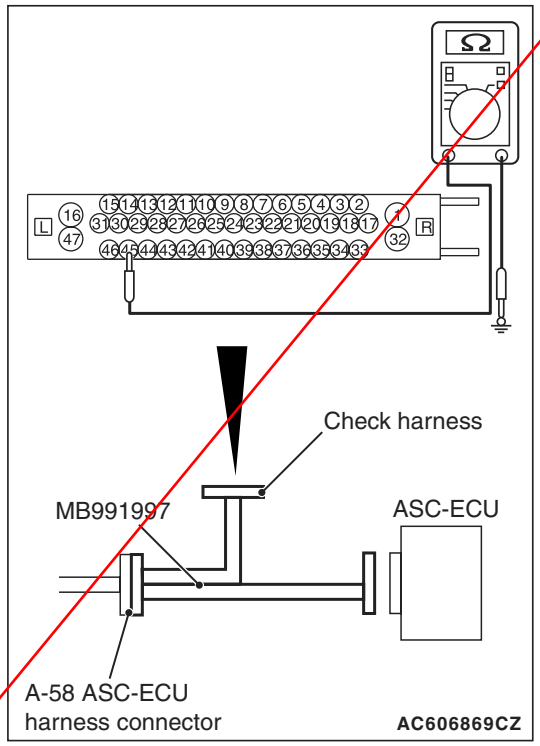
**OK: 1 V or less**

**Q: Is the check result normal?**

**YES :** Go to Step 6.

**NO (Not normal at the terminal No.45 or 46) :** Go to Step 7.

**STEP 6. Resistance measurement at A-58 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the resistance at the special tool connector side.

*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*

(2) Measure the resistance between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth, and between the wheel speed sensor earth terminal No.46 and the body earth.

**OK: No continuity**

**Q: Is the check result normal?**

**YES :** Go to Step 9.

**NO (Not normal at the terminal No.45 or 46) :** Go to Step 7.

**STEP 7. Connector check: A-58 ASC-ECU connector, A-08 wheel speed sensor <FL> connector**

**Q: Is the check result normal?**

**YES :** Go to Step 8.

**NO :** Repair the defective connector. Then go to Step 17.

Attached sheet 25 (3/5)

<Deleted>

**STEP 8. Wiring harness check between A-58 ASC-ECU connector terminal No.45 and A-08 wheel speed sensor <FL> connector terminal No.1 and between A-58 ASC-ECU connector terminal No.46 and A-08 wheel speed sensor <FL> connector terminal No.2.**

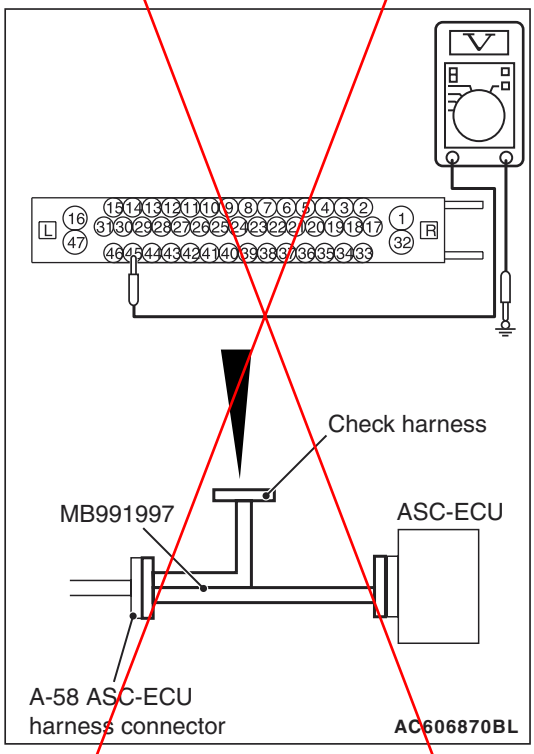
- Check for short circuit in wheel speed sensor <FL> circuit

**Q: Is the check result normal?**
**YES :** Replace the wheel speed sensor <F
17.

<New>

**STEP 8. Check for wheel speed sensor output current**

**STEP 9. Voltage measurement at the A-58 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the ASC-ECU-side connector and harness-side connector, and then measure the voltage at the special tool connector side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the wheel speed sensor circuit power supply terminal (signal terminal) No.45 and the body earth.

**OK: Approximately system voltage**

**Q: Is the check result normal?**
**YES :** Go to Step 10.
**NO :** Go to Step 12.

<Old> STEP 6. <New>

**STEP 10. Wiring harness check between A-58 ASC-ECU connector terminal No.45 and A-08 wheel speed sensor <FL> connector terminal No.1 and between A-58 ASC-ECU connector terminal No.46 and A-08 wheel speed sensor <FL> connector terminal No.2.** <Deleted>

- Check for open circuit in wheel speed sensor <FL> circuit.

**Q: Is the check result normal?**
**YES :** Go to Step 11. <Old> Step 7. <New>
**NO :** Repair the wiring harness. Then go to Step 17. <Old> 13. <New>
<Old>

**STEP 11. Check for wheel speed sensor as a single unit**
Refer to .

**Q: Is the check result normal?**
**YES :** Go to Step 13. <Old> Step 9. <New>
**NO :** Replace the wheel speed sensor <FL> (Refer to ). Then go to Step 17. Step 12.
<Old> STEP 5. <New> <Old> <New>

**STEP 12. Connector check: A-58 ASC-ECU connector, A-08 wheel speed sensor <FL> connector**

**Q: Is the check result normal?**
**YES :** Go to Step 16. <Old> Step 6. <New>
**NO :** Repair the defective connector. Then go to Step 17. <Old> Step 13. <New>
<Old> <New>

**STEP 13. Check for wheel speed sensor installation** STEP 7.
Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.). <New> Step 8. <New>

**Q: Is the check result normal?**
**YES :** Go to Step 14. <Old>
**NO :** Reinstall the wheel speed sensor <FL> correctly (Refer to ). Then go to Step 17. <Old>
Step 8.
<Old>

**STEP 14. Check for wheel bearing looseness** STEP 9.
*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness. (Refer to GROUP 26 – On-vehicle Service ).* <New>

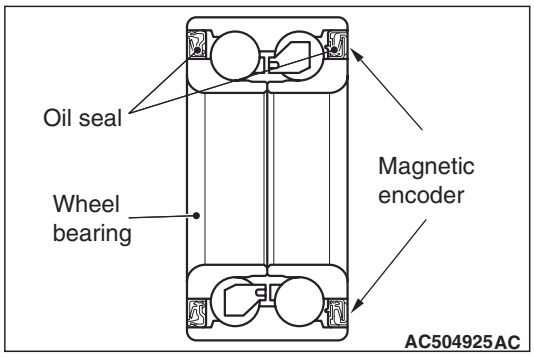
**Q: Is the check result normal?**
**YES :** Go to Step 15. <Old> Step 10. <New>
**NO :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

STEP 10. <New>

Attached sheet 25 (4/5)

<Old>

**~~STEP 15.~~ Check of wheel speed detection encoder**




Check the encoder for adhesion of foreign materials or deformation.

<New>

**Q: Is the check result normal?**

**YES :** Go to ~~Step 16.~~ <Old> Step 11.

**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction.

**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

<Old>

**~~STEP 16.~~ Check whether the diagnosis code is reset.**

STEP 12. <New>

Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1046 set?**

**YES :** Replace the hydraulic unit (ASC-ECU) (Refer to ). Then go to ~~Step 17.~~ <Old> <New> Step 13.

**NO :** This diagnosis is complete.

<Old>

**~~STEP 17.~~ Check whether the diagnosis code is reset.**

STEP 13. <New>

Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1046 set?**

**YES :** Return to Step 1.

**NO :** This diagnosis is complete.

<Added>

From Attached sheet 25 (5/5)

To Attached sheet 25 (4/5)

<Added>

<Code No.C1046>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1046 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 12.
**NO:** This diagnosis is complete.

<Code No.C1047>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1047 set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 12.
**NO:** This diagnosis is complete.

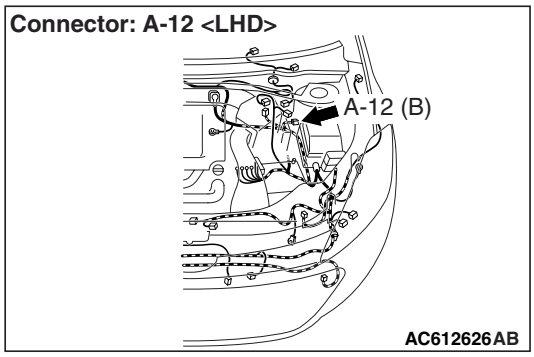
<Code No.C1048>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1048 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 12.
**NO:** This diagnosis is complete.

<Code No.C1049>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1049 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 12.
**NO:** This diagnosis is complete.

Attached sheet 27 (1/5)




**⚠ CAUTION**

- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor, the G and yaw rate sensor and brake fluid pressure sensor (Refer to , and ).**

**OPERATION**

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**

This diagnosis code is set if any malfunction below is found:

- When the brake fluid pressure is decreased for a long time.
- When the brake fluid pressure is held for a long time.

**PROBABLE CAUSES**

- Damaged wiring harness and connectors
- External noise interference
- Malfunction of wheel speed sensor
- ASC-ECU malfunction
- Excessive gap between the wheel speed sensor and the magnetic encoder for wheel speed detection
- Adhesion of foreign materials on the wheel speed sensor
- Adhesion of foreign materials on the magnetic encoder for wheel speed detection
- Wheel bearing malfunction
- Improper installation of the wheel speed sensor
- Deformation of the magnetic encoder for wheel speed detection
- Disturbance of magnetization pattern for magnetic encoder for wheel speed detection
- Missing teeth of the magnetic encoder for wheel speed detection

## DIAGNOSTIC PROCEDURE

**STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES :** Go to Step 3.

**NO :** Repair the CAN bus lines. On completion, go to Step 2.

**STEP 2. Diagnosis code recheck after resetting CAN bus lines**

**Q: Is diagnosis code No.C1046 set?**

**YES :** Go to Step 3.

**NO :** This diagnosis is complete.

**STEP 3. M.U.T.-III diagnosis code**

Check that the diagnosis codes No.C100A, C1011, C1014, and C1041 are also set.

**Q: Are the diagnosis codes No.C100A, C1011, C1014, and C1041 also set?**

**YES :** Carry out the diagnosis for the relevant diagnosis codes ~~and then go to Step 5.~~ <Deleted>

**NO :** Go to Step 4.

**STEP 4. M.U.T.-III data list**

Check the following service data (Refer to ).

- Item No.01: FL wheel speed sensor

**Q: Is the check result normal?**

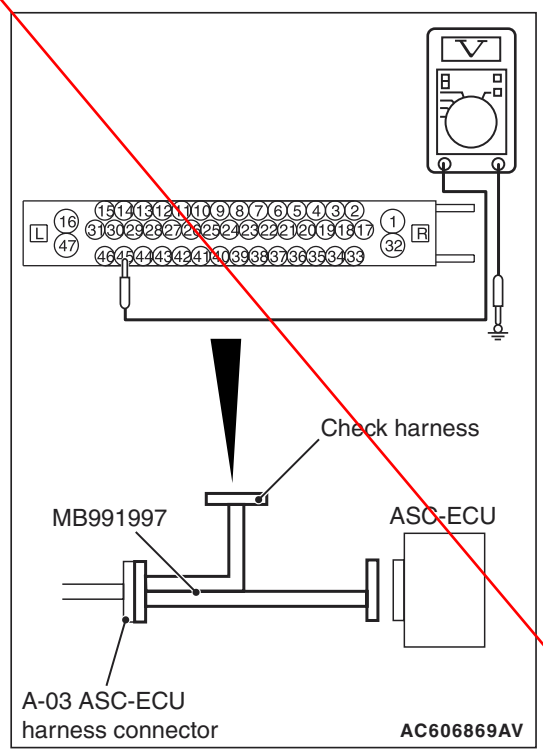
**YES :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

**NO :** Go to Step 5.

<Deleted>

Attached sheet 27 (2/5)

**STEP 5. Voltage measurement at the A-03 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the voltage at the special tool connector side.

*NOTE: Do not connect the special tool to ASC-ECU.*

(2) Turn the ignition switch to the ON position.

(3) Measure the voltage between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth and between the earth terminal No.46 and the body earth.

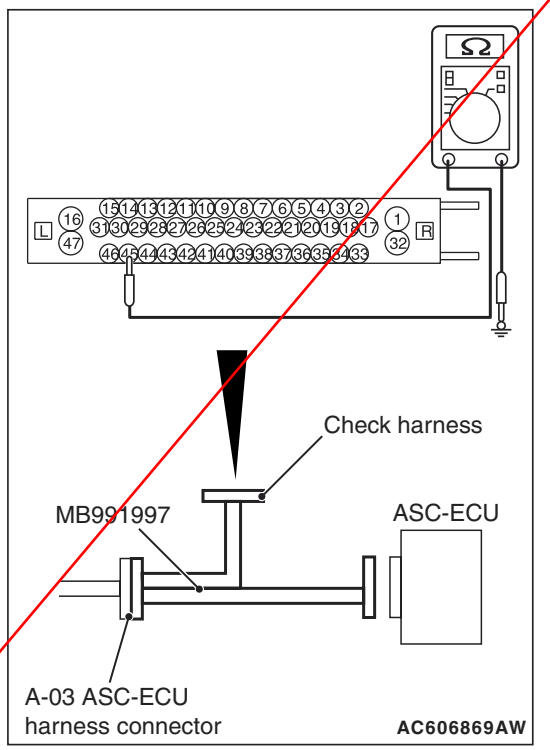
**OK: 1 V or less**

**Q: Is the check result normal?**

**YES :** Go to Step 6.

**NO (Not normal at the terminal No.45 or 46) :** Go to Step 7.

**STEP 6. Resistance measurement at A-03 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the harness-side connector, and then measure the resistance at the special tool connector side.

*NOTE: Do not connect the special tool ASC check harness (MB991997) to ASC-ECU.*

(2) Resistance between the wheel speed sensor power supply terminal (signal terminal) No.45 and the body earth, and between the wheel speed sensor earth terminal No.46 and the body earth.

**OK: No continuity**

**Q: Is the check result normal?**

**YES :** Go to Step 9.

**NO (Not normal at the terminal No.45 or 46) :** Go to Step 7.

**STEP 7. Connector check: A-03 ASC-ECU connector, A-12 wheel speed sensor <FL> connector**

**Q: Is the check result normal?**

**YES :** Go to Step 8.

**NO :** Repair the defective connector.

<Deleted>

**STEP 8. Wiring harness check between A-03 ASC-ECU connector terminal No.45 and A-12 wheel speed sensor <FL> connector terminal No.1 and between A-03 ASC-ECU connector terminal No.46 and A-12 wheel speed sensor <FL> connector terminal No.2.**

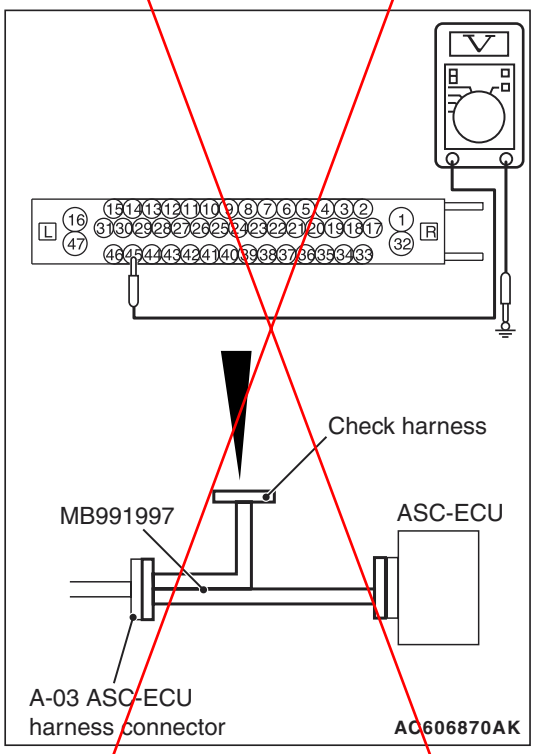
- Check for short circuit in wheel speed sensor <FL> circuit

**Q: Is the check result normal?**

<New>
**STEP 8. Check for wheel speed sensor output current**
(Refer to ).

**NO :** Repair the wiring harness.

**STEP 9. Voltage measurement at the A-03 ASC-ECU connector**




(1) Disconnect the ASC-ECU connector, connect special tool ASC check harness (MB991997) to the ASC-ECU-side connector and harness-side connector, and then measure the voltage at the special tool connector side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the wheel speed sensor circuit power supply terminal (signal terminal) No.45 and the body earth.

**OK: Approximately battery voltage**

**Q: Is the check result normal?**
**YES :** Go to Step 10.
**NO :** Go to Step 12.

<Old> STEP 6. <New>

**STEP 10. Wiring harness check between A-03 ASC-ECU connector terminal No.45 and A-12 wheel speed sensor <FL> connector terminal No.1 and between A-03 ASC-ECU connector terminal No.46 and A-12 wheel speed sensor <FL> connector terminal No.2.**

<Deleted>
- Check for open circuit in wheel speed sensor <FL> circuit.

**Q: Is the check result normal?**
**YES :** Go to Step 11. <Old> Step 7. <New>
**NO :** Repair the wiring harness.

<Old>

**STEP 11. Check for wheel speed sensor as a single unit**
Refer to .

**Q: Is the check result normal?**
**YES :** Go to Step 13. <Old> Step 9. <New>
**NO :** Replace the wheel speed sensor <FL> (Refer to ).

<Old> STEP 5. <New>

**STEP 12. Connector check: A-03 ASC-ECU connector**

**Q: Is the check result normal?**
**YES :** Go to Step 16. <Old> Step 6. <New>
**NO :** Repair the defective connector.

<Old>

**STEP 13. Check for wheel speed sensor installation** STEP 7. <New>

Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).

**Q: Is the check result normal?**
**YES :** Go to Step 14. <Old> Step 8. <New>
**NO :** Reinstall the wheel speed sensor <FL> correctly (Refer to ).

<Old> <New>

**STEP 14. Check for wheel bearing looseness** STEP 9.

*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness. (Refer to GROUP 26 – On-vehicle Service ).*

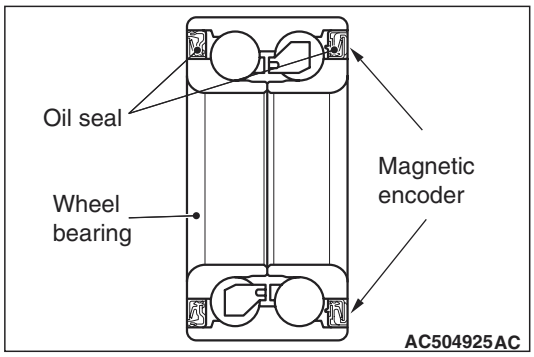
<New>
**Q: Is the check result normal?**
**YES :** Go to Step 15. <Old> Step 10.
**NO :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

Attached sheet 27 (4/5)

STEP 10. <New>

<Old>

**~~STEP 15.~~ Check of wheel speed detection encoder**




Check the encoder for adhesion of foreign materials or deformation.

**Q: Is the check result normal?**

**YES :** Go to ~~Step 16.~~ <Old> Step 11. <New>

**NO (Adhesion of foreign materials) :** Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction.

**NO (Deformation) :** Replace the wheel bearing (Refer to GROUP 26 – Front axle hub assembly ).

<New>

STEP 12.

<Old>

**~~STEP 16.~~ Check whether the diagnosis code is reset.**

(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.

*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*

**Q: Is diagnosis code No. C1046 set?**

**YES :** Replace the ASC-ECU (Refer to ).

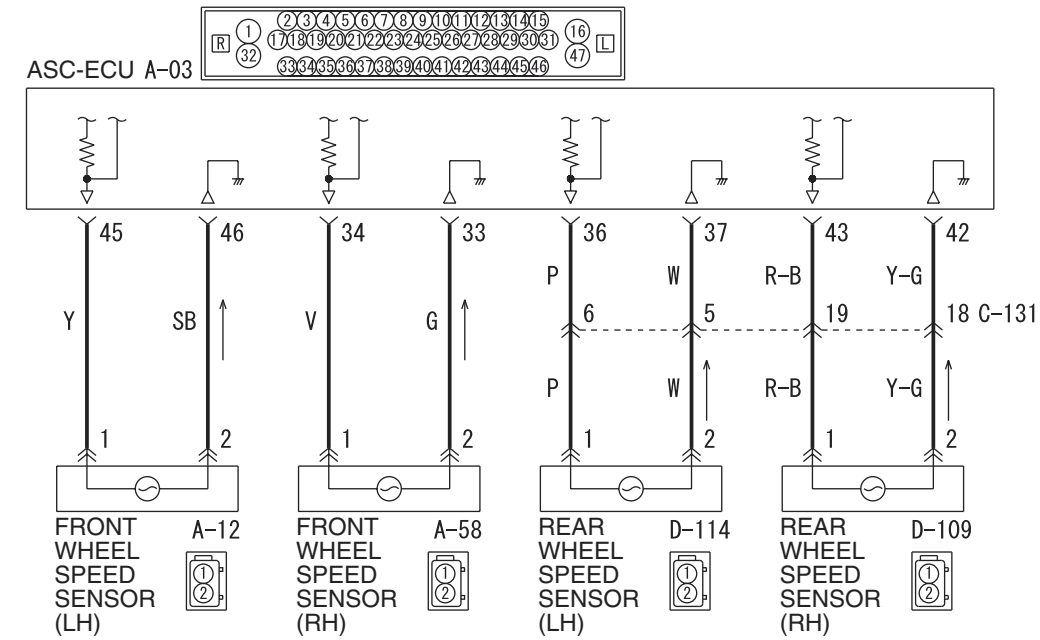
**NO :** This diagnosis is complete.

<Added>

From Attached sheet 27 (5/5)

## Code No. C1047 FR wheel speed sensor control phase time exceeded

**Wheel Speed Sensor Circuit**




Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W7G35E000A

To Attached sheet 27 (4/5)

<Added>

<Code No.C1046>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1046 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 12.
**NO:** This diagnosis is complete.

<Code No.C1047>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1047 set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 12.
**NO:** This diagnosis is complete.

<Code No.C1048>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1048 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 12.
**NO:** This diagnosis is complete.

<Code No.C1049>

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1049 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 12.
**NO:** This diagnosis is complete.

Attached sheet 30 (1/5)

- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

**DIAGNOSIS CODE SET CONDITIONS**

This diagnosis code is set if any malfunction below is found:

- When the brake fluid pressure is decreased for a long time.
- When the brake fluid pressure is held for a long time.

From Attached sheet 30 (2/5), (3/5), (4/5), (5/5)

**PROBABLE CAUSES**

- Damaged wiring harness and connectors
- External noise interference
- Malfunction of wheel speed sensor
- ASC-ECU malfunction
- Excessive gap between the wheel speed sensor and the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed sensor
- Adhesion of foreign materials on the wheel speed detection encoder
- Wheel bearing malfunction
- Improper installation of the wheel speed sensor
- Deformation of the wheel speed detection encoder
- Disturbance of magnetisation pattern for wheel speed detection encoder
- Missing teeth of the wheel speed detection encoder

## DIAGNOSTIC PROCEDURE

**STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES :** Go to Step 3.
**NO :** Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting ). On completion, go to Step 2.

**STEP 2. Diagnosis code recheck after resetting CAN bus lines**

**Q: Is the diagnosis code No. C1046 set?**
**YES :** Go to Step 3.
**NO :** This diagnosis is complete.

<Added>

**STEP 3. M.U.T.-III diagnosis code**

Check that the diagnosis codes No. C1015, C101C, C101F, and C1042 are also set.

**Q: Are the diagnosis codes No. C1015, C101C, C101F, and C1042 also set?**
**YES :** Carry out the diagnosis for the relevant diagnosis codes, and then go to Step 5.
**NO :** Go to Step 4.

<Old>

~~STEP 4.~~ **Check whether the diagnosis code is reset.**

STEP 12.

- Drive the vehicle at 20 km/h or more.

<New>

**Q: Is the diagnosis code No. C1046 set?**
**YES :** Replace the ASC-ECU, and then go to Step ~~5.~~ 13.

<Old> <New>

**NO :** This diagnosis is complete.

<Old>

~~STEP 5.~~ **Check whether the diagnosis code is reset.**

STEP 13. <New>

- Drive the vehicle at 20 km/h or more.

**Q: Is the diagnosis code No. C1046 set?**
**YES :** Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).
**NO :** This diagnosis is complete.FL

**Code No. C1047 FR wheel speed sensor control phase time exceeded**

**⚠ CAUTION**
**If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C, Trouble code diagnosis ).**

**OPERATION**

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

To Attached sheet 30 (1/5)

<Added>
<Code No.C1046>

**STEP 4. M.U.T. data list**
Check the following service data.
Item No.01: FL wheel speed sensor
**Q:Is the check result normal?**
**YES:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).
**NO:** Go to Step 5.

<In case of ABS>
**STEP 5. Connector check: A-02 ABS-ECU connector, A-12 wheel speed sensor <FL> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-02 ABS-ECU connector terminal No. 18/19 and A-12 wheel speed sensor <FL> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

<In case of ASC>
**STEP 5. Connector check: A-03 ASC-ECU connector, A-12 wheel speed sensor <FL> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-03 ASC-ECU connector terminal No. 45/46 and A-12 wheel speed sensor <FL> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

**STEP 7. Check for wheel speed sensor installation**
Check how the wheel speed sensor <FL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 8.
**NO:** Reinstall the wheel speed sensor correctly.

**STEP 8. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 9.
**NO:** Replace the wheel speed sensor.

**STEP 9. Check for wheel bearing looseness**
*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FL> for looseness. (Refer to GROUP 26 - On-vehicle Service.)*
**Q:Is the check result normal?**
**YES:** Go to Step 10.
**NO:** Replace the wheel bearing.

**STEP 10. Check of wheel speed detection encoder**
Check the encoder for adhesion of foreign materials or deformation.
**Q:Is the check result normal?**
**YES:** Go to Step 11.
**NO:** Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. When the encoder is deformed, replace the wheel bearing.

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1046 set?**
**Yes:** Replace the wheel speed sensor <FL>. Then go to Step 12.
**NO:** This diagnosis is complete.

To Attached sheet 30 (1/5)

<Added>
<Code No.C1047>

**STEP 4. M.U.T. data list**
Check the following service data.
Item No.02: FR wheel speed sensor
**Q:Is the check result normal?**
**YES:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).
**NO:** Go to Step 5.

<In case of ABS>
**STEP 5. Connector check: A-02 ABS-ECU connector, A-58 wheel speed sensor <FR> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-02 ABS-ECU connector terminal No. 21/22 and A-58 wheel speed sensor <FR> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

<In case of ASC>
**STEP 5. Connector check: A-03 ASC-ECU connector, A-58 wheel speed sensor <FR> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-03 ASC-ECU connector terminal No. 33/34 and A-58 wheel speed sensor <FR> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

**STEP 7. Check for wheel speed sensor installation**
Check how the wheel speed sensor <FR> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 8.
**NO:** Reinstall the wheel speed sensor correctly.

**STEP 8. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 9.
**NO:** Replace the wheel speed sensor.

**STEP 9. Check for wheel bearing looseness**
*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <FR> for looseness. (Refer to GROUP 26 - On-vehicle Service.)*
**Q:Is the check result normal?**
**YES:** Go to Step 10.
**NO:** Replace the wheel bearing.

**STEP 10. Check of wheel speed detection encoder**
Check the encoder for adhesion of foreign materials or deformation.
**Q:Is the check result normal?**
**YES:** Go to Step 11.
**NO:** Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. When the encoder is deformed, replace the wheel bearing.

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1047 set?**
**Yes:** Replace the wheel speed sensor <FR>. Then go to Step 12.
**NO:** This diagnosis is complete.

To Attached sheet 30 (1/5)

<Added>
<Code No.C1048>

**STEP 4. M.U.T. data list**
Check the following service data.
Item No.03: RL wheel speed sensor
**Q:Is the check result normal?**
**YES:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).
**NO:** Go to Step 5.

<In case of ABS>
**STEP 5. Connector check: A-02 ABS-ECU connector, D-114 wheel speed sensor <RL> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-02 ABS-ECU connector terminal No. 24/25 and D-114 wheel speed sensor <RL> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

<In case of ASC>
**STEP 5. Connector check: A-03 ASC-ECU connector, D-114 wheel speed sensor <RL> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-03 ASC-ECU connector terminal No. 36/37 and D-114 wheel speed sensor <RL> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

**STEP 7. Check for wheel speed sensor installation**
Check how the wheel speed sensor <RL> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 8.
**NO:** Reinstall the wheel speed sensor correctly.

**STEP 8. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 9.
**NO:** Replace the wheel speed sensor.

**STEP 9. Check for wheel bearing looseness**
*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <RL> for looseness. (Refer to GROUP 27 - On-vehicle Service.)*
**Q:Is the check result normal?**
**YES:** Go to Step 10.
**NO:** Replace the wheel bearing.

**STEP 10. Check of wheel speed detection encoder**
Check the encoder for adhesion of foreign materials or deformation.
**Q:Is the check result normal?**
**YES:** Go to Step 11.
**NO:** Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. When the encoder is deformed, replace the wheel bearing.

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1048 set?**
**Yes:** Replace the wheel speed sensor <RL>. Then go to Step 12.
**NO:** This diagnosis is complete.

To Attached sheet 30 (1/5)

<Added>
<Code No.C1049>

**STEP 4. M.U.T. data list**
Check the following service data.
Item No.04: RR wheel speed sensor
**Q:Is the check result normal?**
**YES:** Intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction).
**NO:** Go to Step 5.

<In case of ABS>
**STEP 5. Connector check: A-02 ABS-ECU connector, D-109 wheel speed sensor <RR> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-02 ABS-ECU connector terminal No. 15/16 and D-109 wheel speed sensor <RR> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

<In case of ASC>
**STEP 5. Connector check: A-03 ASC-ECU connector, D-109 wheel speed sensor <RR> connector**
**Q:Is the check result normal?**
**YES:** Go to Step 6.
**NO:** Repair the detective connector.

**STEP 6. Wiring harness check between A-03 ASC-ECU connector terminal No. 42/43 and D-109 wheel speed sensor <RR> connector terminal No. 1/2.**
**Q:Is the check result normal?**
**YES:** Go to Step 7.
**NO:** Reinstall the wiring harness.

**STEP 7. Check for wheel speed sensor installation**
Check how the wheel speed sensor <RR> is installed (Disconnection of wheel speed sensor, loose mounting bolt, etc.).
**Q:Is the check result normal?**
**YES:** Go to Step 8.
**NO:** Reinstall the wheel speed sensor correctly.

**STEP 8. Check for wheel speed sensor output current**
**Q:Is the check result normal?**
**YES:** Go to Step 9.
**NO:** Replace the wheel speed sensor.

**STEP 9. Check for wheel bearing looseness**
*NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing <RR> for looseness. (Refer to GROUP 27 - On-vehicle Service.)*
**Q:Is the check result normal?**
**YES:** Go to Step 10.
**NO:** Replace the wheel bearing.

**STEP 10. Check of wheel speed detection encoder**
Check the encoder for adhesion of foreign materials or deformation.
**Q:Is the check result normal?**
**YES:** Go to Step 11.
**NO:** Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. When the encoder is deformed, replace the wheel bearing.

**STEP 11. Check whether the diagnosis code is reset.**
(1) Erase the diagnosis code.
(2) Drive the vehicle at 20 km/h or more.
*NOTE: The ABS warning lamp does not turn OFF in some cases unless the vehicle runs at 20 km/h or higher.*
**Q:Is the diagnosis code No.C1049 set?**
**Yes:** Replace the wheel speed sensor <RR>. Then go to Step 12.
**NO:** This diagnosis is complete.

Attached sheet 31 (1/2)

4. Terminal layout is shown in the figure.

| Terminal No. | Signal | Normal condition |
|---|---|---|
| 16 – body earth | Earth | Continuity exists (2Ω or less) |
| 47 – body earth | Earth | |

# ON-VEHICLE SERVICE

## HYDRAULIC UNIT (HU) CHECK

M1355006100202

1. Raise the vehicle using a jack and support the specified points with a rigid rack.

**⚠ CAUTION**
**Before connecting or disconnecting M.U.T.-III, always turn the ignition switch to the LOCK (OFF) position.**

2. Before setting M.U.T.-III, turn the ignition key to the LOCK (OFF) position.
3. Confirm that the selector lever is in the "N" position, and then start the engine.
4. When carrying out the actuator tests No.01 to 04, perform the actuator tests using M.U.T.-III while depressing the brake pedal. When carrying out the actuator tests No.05 to 08, perform the actuator tests using M.U.T.-III without depressing the brake pedal. When carrying out the actuator tests, rotate the wheel by hands to confirm that the braking force changes.

*NOTE:*
- *While performing the actuator test, the ABS warning lamp flashes at a rate of 2 Hz.*
- *When ASC-ECU is disabled due to the fail-safe function, the M.U.T.-III actuator test cannot be performed.*
- *After the actuator test has been performed, the ABS warning lamp, brake waning lamp, ASC ON indicator lamp, and ASC OFF indicator lamp illuminate until the ignition switch is turned to ON again or the communication between M.U.T.-III and ASC-ECU is terminated.*

<Added>

From Attached sheet 31 (2/2)

Attached sheet 31 (2/2)

# ON-VEHICLE SERVICE

## WHEEL SPEED SENSOR OUTPUT CURRENT MEASUREMENT

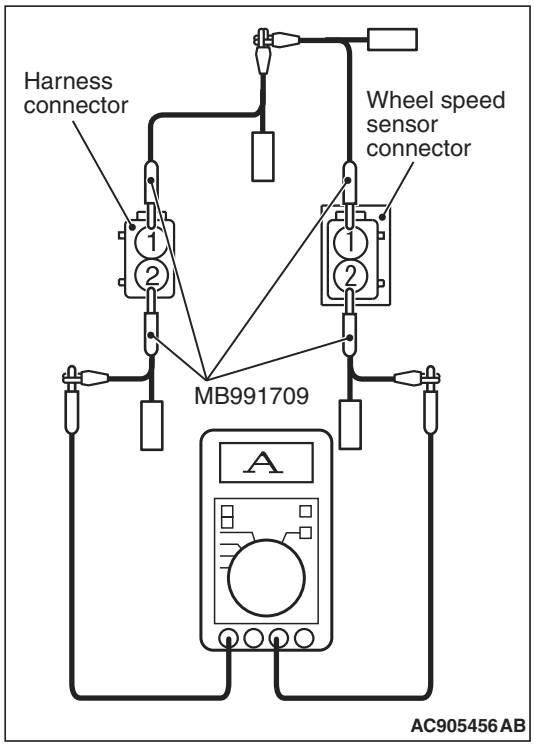
M1352032800021

The relevant wheel, on which the wheel speed sensor is fitted, should be free to run.

1. Remove the wheel speed sensor connector to be checked.

**⚠ CAUTION**

**For precise measurement, do not connect to the wheel speed sensor-side connector and the wiring harness side connector terminal No.1.**




2. Use the special tool test harness (MB991709) to connect a multimeter between the wheel speed sensor-side connector and the wiring harness connector terminal No.2.
3. Turn the ignition switch to the "ON" position.

**⚠ CAUTION**

**Do not rotate the wheel too quickly. Output current changes significantly as the wheel speed detection magnetic encoder comes near or goes away from the wheel speed sensor.**

4. Rotate the wheel, on which the wheel speed sensor is fitted, quite slowly to measure the output current with the multimeter.

   **Standard value: 5.9 to 8.4 mA or 11.8 to 16.8 mA**

5. If the measurement is not within the standard value, or the output current does not change in proportion to the wheel rotation, replace the wheel speed sensor.

<Added>

To Attached sheet 31 (1/2)

Attached sheet 32

4. Terminal layout is shown in the figure.

| Terminal No. | Signal | Normal condition |
|---|---|---|
| 16 – body earth | Earth | Continuity exists (2Ω or less) |
| 47 – body earth | Earth | |

# ON-VEHICLE SERVICE

## HYDRAULIC UNIT (HU) CHECK

M1355006100202

1. Raise the vehicle using a jack and support the specified points with a rigid rack.

**⚠ CAUTION**
**Before connecting or disconnecting M.U.T.-III, always turn the ignition switch to the LOCK (OFF) position.**

2. Before setting M.U.T.-III, turn the ignition key to the LOCK (OFF) position.
3. Confirm that the selector lever is in the "N" position, and then start the engine.
4. When carrying out the actuator tests No.01 to 04, perform the actuator tests using M.U.T.-III while depressing the brake pedal. When carrying out the actuator tests No.05 to 08, perform the actuator tests using M.U.T.-III without depressing the brake pedal. When carrying out the actuator tests, rotate the wheel by hands to confirm that the braking force changes.

*NOTE:*
- *While performing the actuator test, the ABS warning lamp flashes at a rate of 2 Hz.*
- *When ASC-ECU is disabled due to the fail-safe function, the M.U.T.-III actuator test cannot be performed.*
- *After the actuator test has been performed, the ABS warning lamp, brake waning lamp, ASC ON indicator lamp, and ASC OFF indicator lamp illuminate until the ignition switch is turned to ON again or the communication between M.U.T.-III and ASC-ECU is terminated.*

<Added>

**Wheel speed sensor output current measurement**
Refer to GROUP 35B, Wheel speed sensor output current measurement.

Attached sheet 47 (1/2)

4. Terminal layout is shown in the figure.

| Terminal No. | Signal | Normal condition |
|---|---|---|
| 1 – body earth | Earth | Continuity exists (2Ω or less) |
| 14 – body earth | Earth | |

# ON-VEHICLE SERVICE

## HYDRAULIC UNIT (HU) CHECK

M1355006100202

1. Raise the vehicle using a jack and support the specified points with a rigid rack.

**⚠ CAUTION**
**Before connecting or disconnecting M.U.T.-III, always turn the ignition switch to the LOCK (OFF) position.**

2. Before setting M.U.T.-III, turn the ignition key to the LOCK (OFF) position.
3. Confirm that the selector lever is in the "N" position, and then start the engine.
4. When carrying out the actuator tests No.01 to 04, perform the actuator tests using M.U.T.-III while depressing the brake pedal. When carrying out the actuator tests No.05 to 08, perform the actuator tests using M.U.T.-III without depressing the brake pedal. When carrying out the actuator tests, rotate the wheel by hands to confirm that the braking force changes.

*NOTE:*
- *While performing the actuator test, the ABS warning lamp flashes at a rate of 2 Hz.*
- *When ABS-ECU is disabled due to the fail-safe function, the M.U.T.-III actuator test cannot be performed.*
- *After the actuator test has been performed, the ABS warning lamp and brake waning lamp illuminate until the ignition switch is turned to ON again or the communication between M.U.T.-III and ABS-ECU is terminated.*

<Added>

From Attached sheet 47 (2/2)

Attached sheet 47 (2/2)

# ON-VEHICLE SERVICE

## WHEEL SPEED SENSOR OUTPUT CURRENT MEASUREMENT

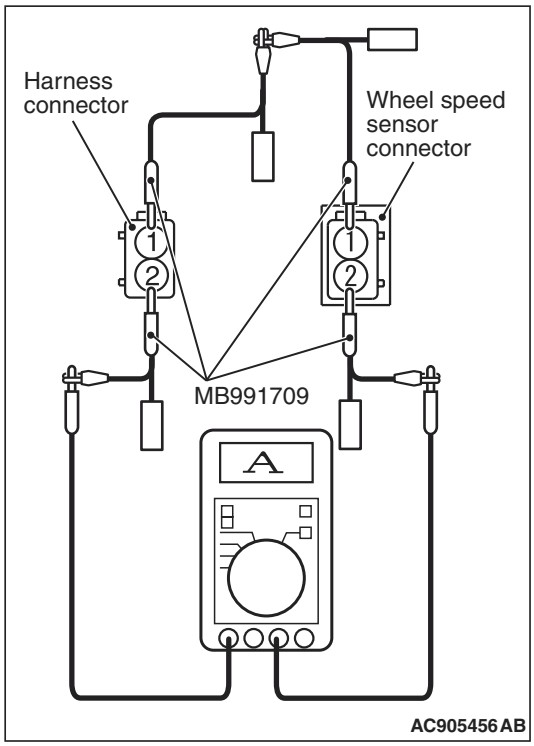
M1352032800021

The relevant wheel, on which the wheel speed sensor is fitted, should be free to run.

1. Remove the wheel speed sensor connector to be checked.

**⚠ CAUTION**

**For precise measurement, do not connect to the wheel speed sensor-side connector and the wiring harness side connector terminal No.1.**




2. Use the special tool test harness (MB991709) to connect a multimeter between the wheel speed sensor-side connector and the wiring harness connector terminal No.2.
3. Turn the ignition switch to the "ON" position.

**⚠ CAUTION**

**Do not rotate the wheel too quickly. Output current changes significantly as the wheel speed detection magnetic encoder comes near or goes away from the wheel speed sensor.**

4. Rotate the wheel, on which the wheel speed sensor is fitted, quite slowly to measure the output current with the multimeter.

   **Standard value: 5.9 to 8.4 mA or 11.8 to 16.8 mA**

5. If the measurement is not within the standard value, or the output current does not change in proportion to the wheel rotation, replace the wheel speed sensor.

<Added>

To Attached sheet 47 (1/2)