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## Headlamps

### Principles of Operation

This section details diagnostic information for the Adaptive Front Lighting System (AFS). For more details on system operation,

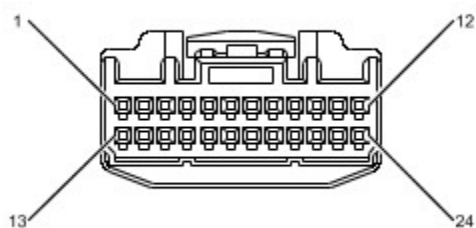
[Exterior Lighting](#)

### Inspection and Verification

- 1 . Verify the customer concern.
- 2 . Visually inspect for obvious signs of mechanical or electrical damage.
- 3 . If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step
- 4 . If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

### Connector Circuit Reference

#### AFS Control Module - C2193



E64288

| Cavity | Description                     | DTC                              | PID           | Symptom   | Input/Output | Possible Cause   |
|--------|---------------------------------|----------------------------------|---------------|---|--------------|--|
| 1      | Ground                          | None                             | None          | No AFS operation  | Input        | Open circuit or short circuit to battery voltage                         |
| 2      | Cavity not used                 | n/a                              | n/a           | n/a   | n/a          | n/a  |
| 3      | Cavity not used                 | n/a                              | n/a           | n/a   | n/a          | n/a  |
| 4      | High speed CAN bus - High       | U1A1413 ,<br>U007311,<br>U030088 | None          | Swivel and level functions set to default position - straight ahead | Input/Output | Open circuit , short circuit to ground, short circuit to battery voltage |
| 5      | High speed CAN bus - Low        | U1A1413 ,<br>U007311,<br>U030088 | None          | Swivel and level functions set to default position - straight ahead | Input/Output | Open circuit , short circuit to ground, short circuit to battery voltage |
| 6      | RH swivel motor ground          | U1A3913,<br>B1D6513              | 7103,<br>7104 | No swivel operation   | Input        | Open circuit   |
| 7      | RH swivel motor signal          | U1A3913,<br>B1D6511              | 7103,<br>7104 | No swivel operation   | Input/Output | Open circuit, short circuit to ground                                    |
| 8      | Cavity not used                 | n/a                              | n/a           | n/a   | n/a          | n/a  |
| 9      | RH levelling motor 1 - Positive | B1A5813,<br>B1A5811,<br>B1A5888  | 7109,<br>710A | No levelling operation  | Output       | Open circuit, short circuit to ground, short circuit to battery voltage  |

|    |                                 |                           |            |                        |              |   |
|----|---------------------------------|---------------------------|------------|------------------------|--------------|---|
| 10 | RH levelling motor 1 - Negative | B1A5813, B1A5811, B1A5888 | 7109, 710A | No levelling operation | Output       | Open circuit, short circuit to ground, short circuit to battery voltage |
| 11 | RH levelling motor 2 - Positive | B1A5813, B1A5811, B1A5888 | 7109, 710A | No levelling operation | Output       | Open circuit, short circuit to ground, short circuit to battery voltage |
| 12 | RH levelling motor 2 - Negative | B1A5813, B1A5811, B1A5888 | 7109, 710A | No levelling operation | Output       | Open circuit, short circuit to ground, short circuit to battery voltage |
| 13 | Battery voltage                 | None                      | None       | No AFS operation       | Output       | Open circuit  |
| 14 | Cavity not used                 | n/a                       | n/a        | n/a                    | n/a          | n/a   |
| 15 | Cavity not used                 | n/a                       | n/a        | n/a                    | n/a          | n/a   |
| 16 | Cavity not used                 | n/a                       | n/a        | n/a                    | n/a          | n/a   |
| 17 | Cavity not used                 | n/a                       | n/a        | n/a                    | n/a          | n/a   |
| 18 | LH swivel motor ground          | U1A3813, B1D6413          | 7101, 7102 | No swivel operation    | Input        | Open circuit  |
| 19 | LH swivel motor signal          | U1A3813, B1D6411          | 7101, 7102 | No swivel operation    | Input/Output | Open circuit, short circuit to ground                                   |
| 20 | Cavity not used                 | n/a                       | n/a        | n/a                    | n/a          | n/a   |
| 21 | LH levelling motor 1 - Positive | B1A5713, B1A5711, B1A5788 | 7109, 710A | No levelling operation | Output       | Open circuit, short circuit to ground, short circuit to battery voltage |
| 22 | LH levelling motor 1 - Negative | B1A5713, B1A5711, B1A5788 | 7109, 710A | No levelling operation | Output       | Open circuit, short circuit to ground, short circuit to battery voltage |
| 23 | LH levelling motor 2 - Positive | B1A5713, B1A5711, B1A5788 | 7109, 710A | No levelling operation | Output       | Open circuit, short circuit to ground, short circuit to battery voltage |
| 24 | LH levelling motor 2 - Negative | B1A5713, B1A5711, B1A5788 | 7109, 710A | No levelling operation | Output       | Open circuit, short circuit to ground, short circuit to battery voltage |