

# SS 1033335 Actia Instruments to Ametek (AMI) Instruments

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Service Solution Title: 1033335 Actia Instruments to Ametek (AMI) Instruments

Applicable Vehicles: FCCC step vans built between 2002 and 2010.

**Symptoms:** After-market purchasing has incurred numerous issues in obtaining service replacement parts at a reasonable price from current vendor Actia. FCCC Engineering developed the attached service parts and installation instructions from Ametek to serve as replacement service parts when a replacement instrument panel is needed.

Issue: If/When replacement service parts are no longer available, it would require to follow the attachments in order to know what replacement parts need to be ordered.

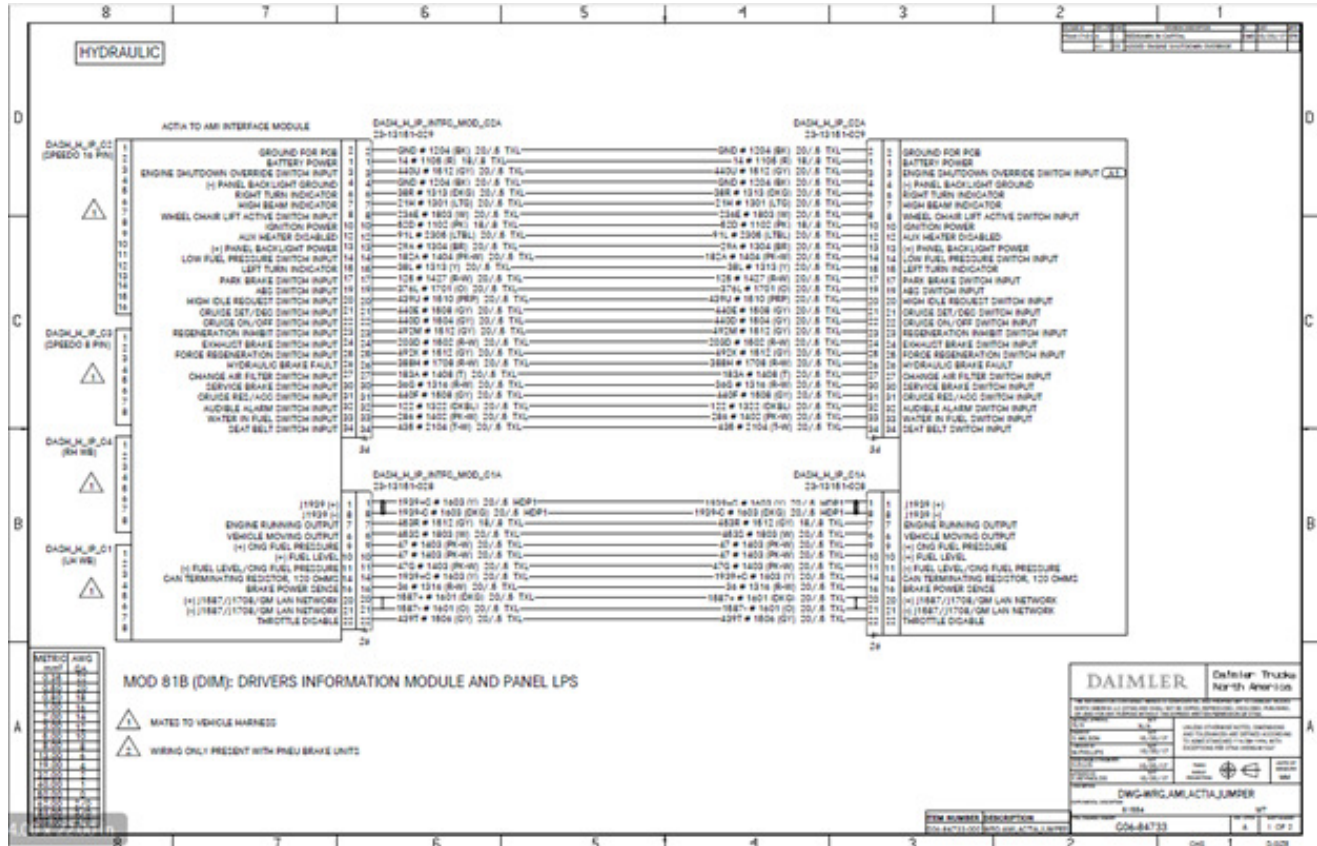
Case Study: N/A

Solution: See the attachments. **D66-03190** shows you the cross-over list from your current Actial panel to the replacement Ametek panel for units built between 2002 to 2007. Then the **D06-84989** MUST be used to see ALL the other parts that will be need **IN ADDITION** to the replacement panel. This document also gives the installation instructions. The G06-84733 shows the new wiring schematics IF needed to reference. **You will also have to know if the vehicle has hydraulic or air brakes in order to know which parts list to use. IF air, you will also need to know if unit has Standard or Metric gauges in order to know which air gauges you will need.**

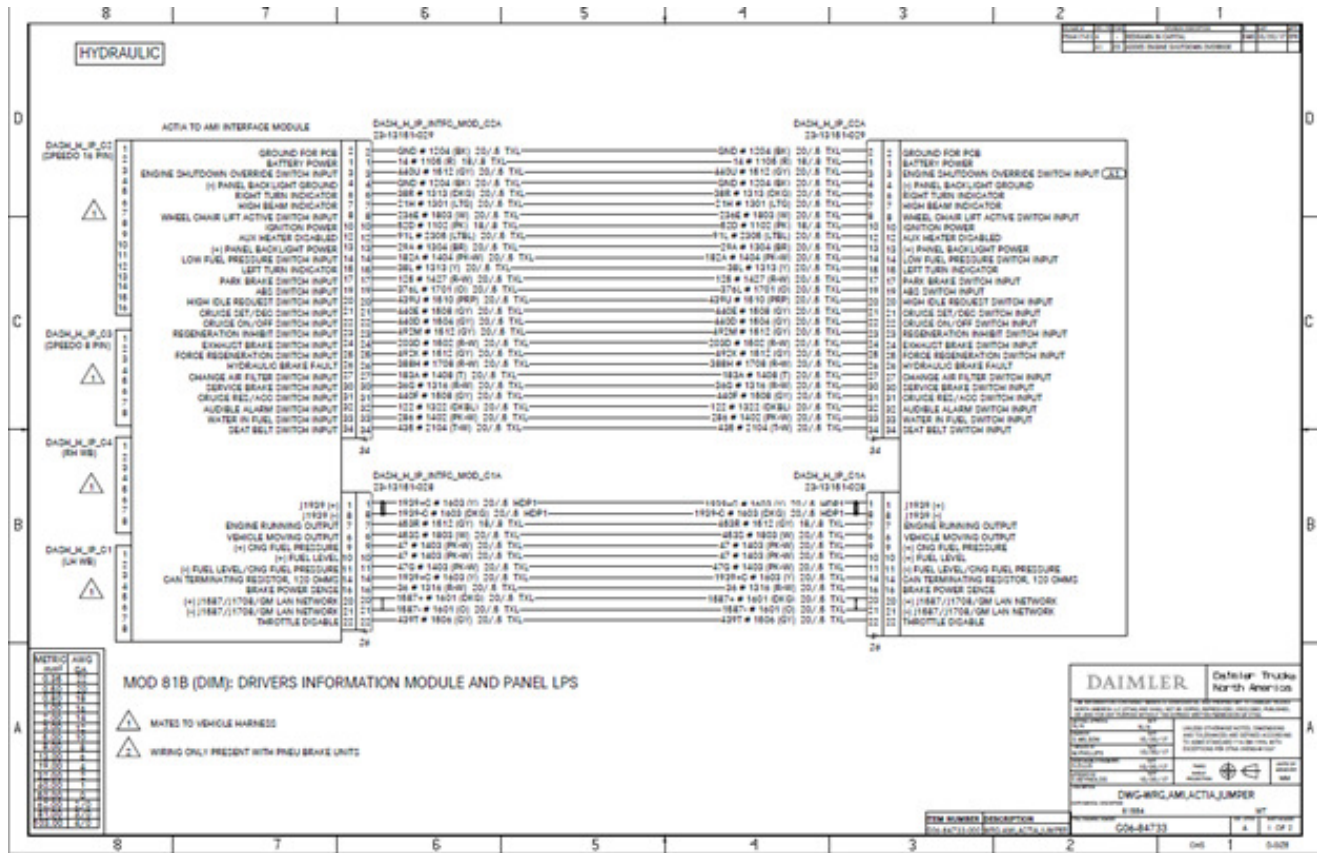
The **D66-03139** attachment shows the cross-over for units **built between 2007 to 2010 with Cummins ISB07 engines**. These would be units that do NOT show a complete instrument panel assembly part number in BOM 732, as only the individual gauge part numbers are shown such as **ATY 109494 or ATY 109493** for example in BOM 844. One should also reference BOM 810 to obtain unit of measure such as **ATY 109496 for English or ATY 109495 for Metric** for example, in order to determine what the replacement **W22** part number will be. **\*\*\*Basically, to determine which D66 Cross-over list to use for replacement of any gauges such as 22-58310-000, 22-58309-000, 22-58307-000, 22-58307-001, ATY 109494, ATY 109493, ATY 109495, or ATY 109496, you MUST know if these parts are called out in BOM 732 under a panel assembly number use (D66-03190), or if these gauges are called out in separate BOM's without a complete panel assembly shown in BOM 732, use (D66-03139) cross-over list.**

The **D66-03368** attachment **MUST** be referenced to show the programming on the new Ametek that will be needed whenever the replacement panels are the **A22-69693** or **A22-69698** families of panels are used as replacements as seen on the **(D66-03190)** cross-over list.

This programming will **NOT** be needed when the replacement Ametek panels are the **W22** families **(D66-03139)** of panels being used as replacements for units built between 2007 to 2010 as seen on the D66-03139 cross-over list.




SS 1033335 Actia Instruments to Ametek (AMI) Instruments



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P42905-01	-	INITIAL RELEASE	KMD	06/16/11	EPR

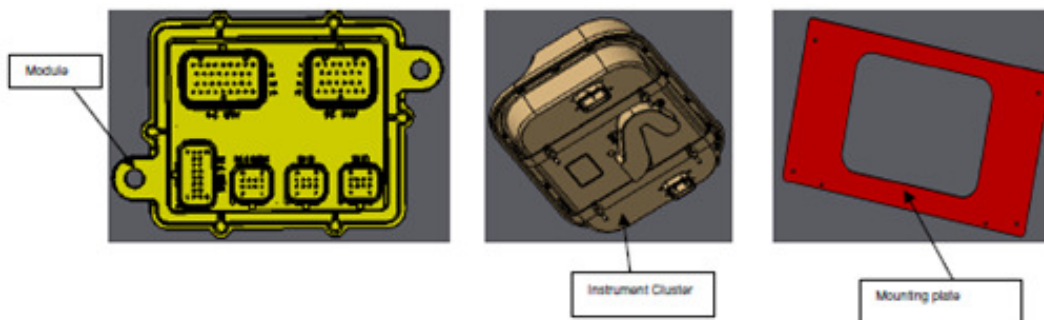
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D06-84898-000 INSTL-PANEL INSTRUMENT	<b>DAIMLER</b>		Daimler Trucks North America	
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	DRAWN BY M. DAMON	DATE 05/16/11		
	CHECKED BY D. GRATE	DATE 05/16/11	THIRD ANGLE PROJECTION	
	RESPONSIBLE ENGINEER B. REED	DATE 05/16/11		
APPROVED BY E. REYNOLDS	DATE 05/16/11			UNIT OF MEASURE MM
DESCRIPTION <b>INSTL-PANEL INSTRUMENT</b>				
SUPPLEMENTAL DESCRIPTION 73201				
PART NUMBER NUMBER <b>D06-84898</b>		REVISION TITLE -	PAGE 1 of 6	

### Service Work Instructions

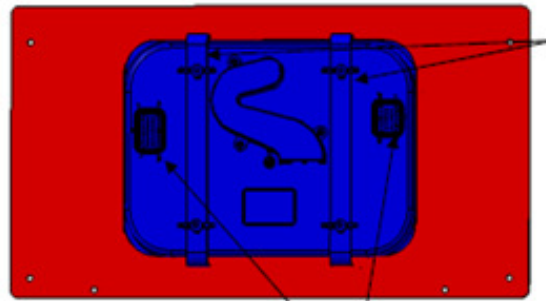
For Vehicles WITHOUT air brakes, use parts and follow instructions below:

Item	Name	Part Number	Quantity
1	Module	06-84694-000	1
2	Instrument Cluster	Refer to service notes	1
3	Jumper Harness	A06-84704-000	1
4	Mounting Plate	06-84700-000	1
5	Tie band	23-09796-629	2



1. Remove existing IP from dash and save existing hardware for later use.
2. Install and secure module (1) to existing harness under dash using tie bands (5).
3. Connect existing dash IP harnesses to the module respectively and make any adjustments as needed.
  - The speedometer 16-pin connector mates to the module 16-pin connector.
  - The speedometer 8-pin connector mates to the module 8-pin connector labeled speedo 8-pin.
  - The 8-pin RH warning bank connector mates to the module 8-pin connector labeled RH WB.
  - The 8-pin LH warning bank connector mates to the module 8-pin connector labeled LH WB.
4. Secure the new instrument cluster (2) to the mounting plate (4) using hardware provided with instrument cluster.
5. Connect the jumper harness (3) to the module (1) and the new instrument cluster (2).
6. Secure the instrument cluster (2) and panel (4) to the vehicle dash using hardware removed from step 1. Dash modifications may be required.

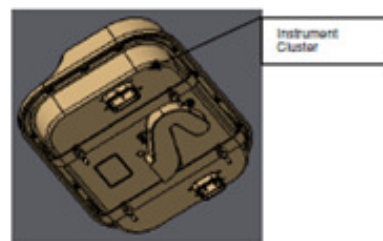
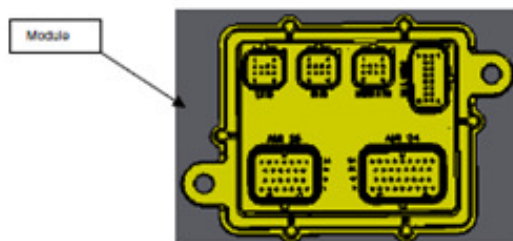
Hardware provided with Instrument Cluster for mounting

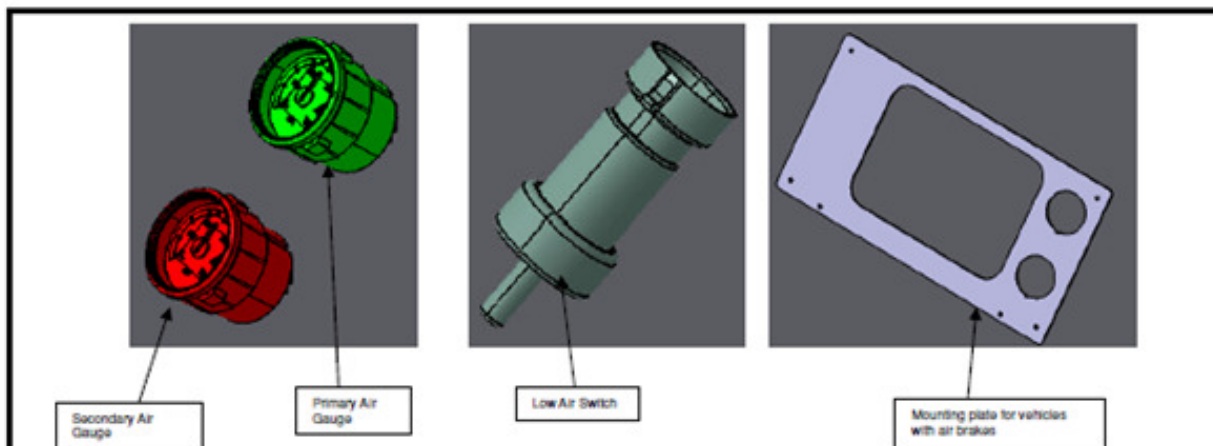


Connect pins to module via jumper harness provided

**For Vehicles WITH air brakes, use parts and follow instructions below:**

Item	Name	Part Number	Quantity
1	Module	06-84694-000	1
2	Instrument Cluster	Refer to service notes	1
3	Jumper Harness	A06-84704-001	1
4	1/4 Inch Connector	SMCKV2HO7 34S	2
5	5/32 Inch Connector	SMCKV2H03 34S	2
6	Primary Air Gauge	A22-63139-400 (US)	1
	Primary Air Gauge	A22-63139-410 (Metric)	1
7	Secondary Air Gauge	A22-63139-401(US)	1
	Secondary Air Gauge	A22-63139-411 (Metric)	1
8	Tee-Pipe	23-09311-001	2
9	Low Air Switch	FSC1749 9192	2
10	Mounting Plate	06-84700-001	1
11	Tie Band	23-09796-629	2
12	Gauge Jumper	A06-41592-007	1
14	5/32 Air Line (Red)	48-00100-512	1.5 FT
15	5/32 Air Line (Green)	48-00100-515	1.5 FT



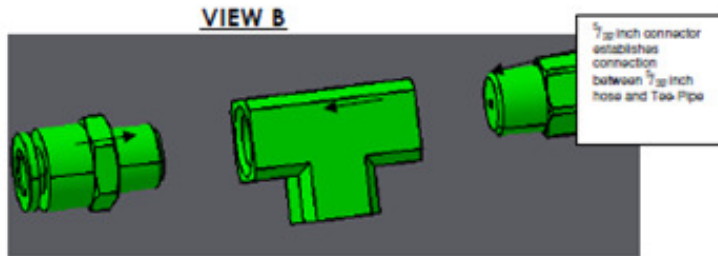


1. Remove existing IP from dash and save existing hardware for later use.
2. Connect the 1/4 inch connector (4) and the 5/32 inch connector (5) to the tee-pipe (8). Connectors to be 1 1/2 to 2 turns past finger tight. **(VIEW B)**
3. Connect the low air switch (9) to the bottom end of the tee-pipe (8). Twist 1 1/2 to 2 turns past finger tight. **(VIEW C)**
4. Connect the 1/4 inch primary air line from vehicle to one of the 1/4 inch connectors (4). **(VIEW C)**
5. Connect the 1/4 inch secondary air line from vehicle to the other 1/4 inch connector (4). **(VIEW D)**
6. Install and secure module (1) to existing harness under dash using tie bands (11).
7. Connect existing dash IP harnesses to the module respectively and make any adjustments as needed.
  - The speedometer 16-pin connector mates to the module 16-pin connector.
  - The speedometer 8-pin connector mates to the module 8-pin connector labeled speedometer 8-pin.
  - The 8-pin RH warning bank connector mates to the module 8-pin connector labeled RH WB.
  - The 8-pin LH warning bank connector mates to the module 8-pin connector labeled LH WB.
8. Secure primary (6) and secondary (7) air gauges to mounting plate (10). **(VIEW E)**
9. Connect primary and secondary air gauges together via gauge harness jumper (12).
10. Secure the new instrument cluster to the mounting plate (10) using hardware provided with instrument cluster. **(VIEW E)**
11. Connect the 5/32inch primary air line, green (15) from the connector (5) to the primary air gauge (6). **(VIEW C)**
12. Connect the 5/32inch secondary air line, red (14) from the connector (5) to the secondary air gauge (7). **(VIEW D)**
13. Connect the jumper harness (3) to the module, the new instrument cluster (2), the primary air gauge (6), and low air switches (9).

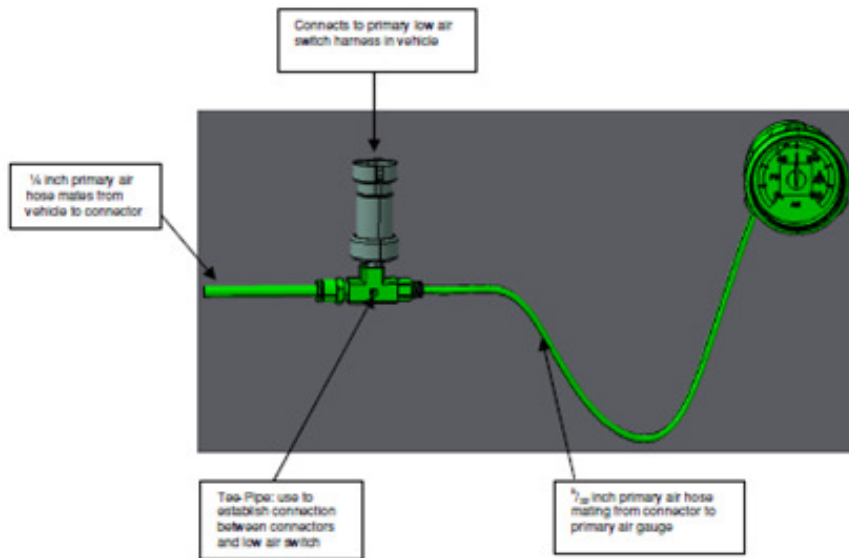
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14. Secure the instrument cluster (2) and panel mount (10) to the vehicle dash using hardware removed from step 1. Dash modifications may be required.

1/4 inch connector establishes connection between 1/4 inch hose and Tee-Pipe



**VIEW C**



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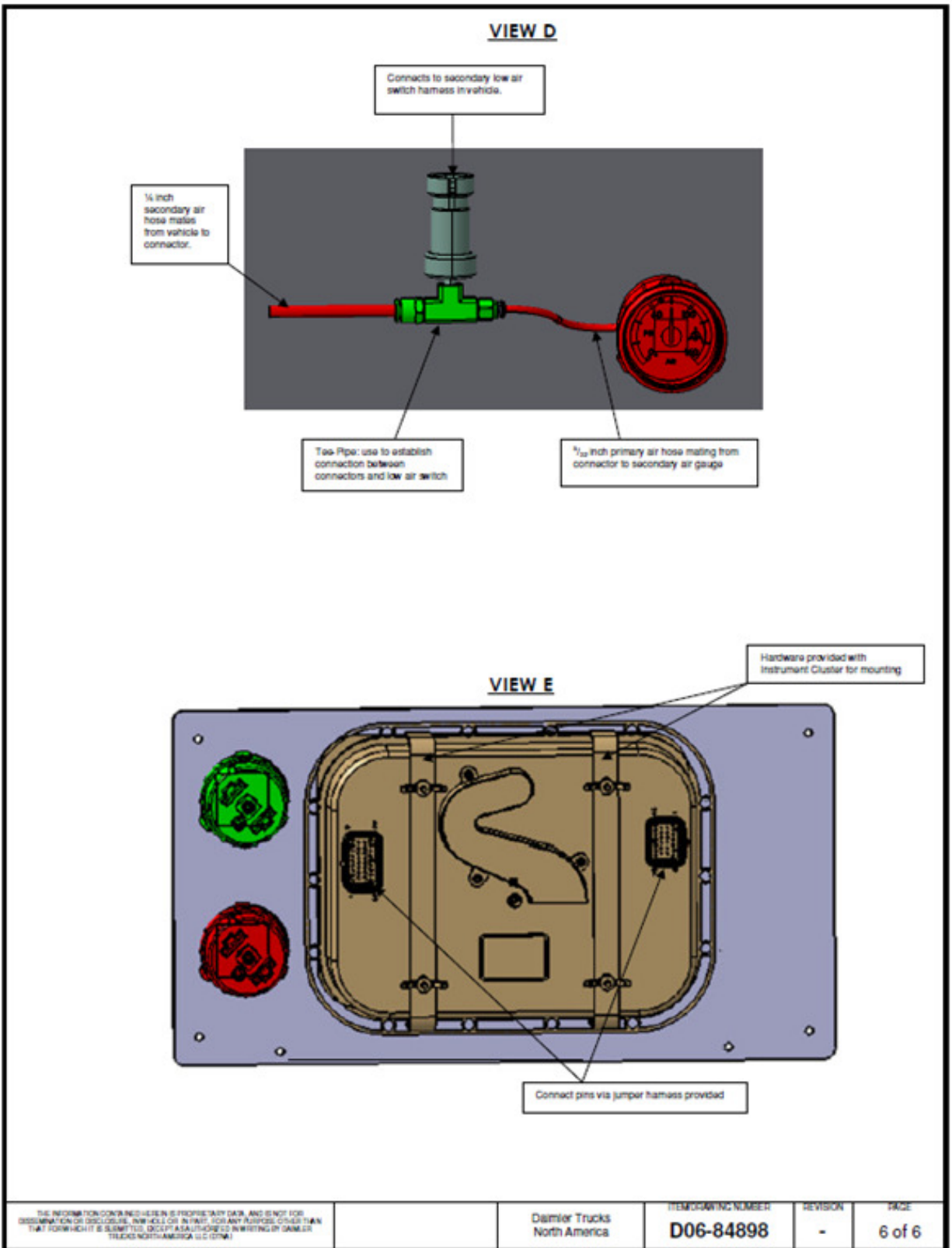
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D66-03139-002 INST-ACTIA RPLCMNT LPG,XOVER		D66-03139-001 INST-ACTIA RPLCMNT CHG,XOVER		D66-03139-000 INST-ACTIA RPLCMNT DIESEL,XOVER		<b>DAIMLER</b>		Daimler Trucks North America	
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DRAWN BY Q.VAN HEESDEN		DATE 11/17/14							
CHECKED BY N.LOVVILLACE		DATE 11/17/14							
APPROVED BY E.REYNOLDS		DATE 11/17/14							
INST-ACTIA RPLCMNT,PRE07,XOVER						SUPPLEMENTAL DESCRIPTION 720A1			
ITEM/DRAWING NUMBER <b>D66-03190</b>		REVISION LETTER -		PAGE 1 of 4					

-000 Diesel Crossover Chart:

Old IP Part #	New IP Part #	Engine Type
A22-58212-X00	A22-69698-000	Diesel
A22-58212-X01	A22-69698-001	Diesel
A22-58212-X02	A22-69698-000	Diesel
A22-58212-X03	A22-69698-001	Diesel
A22-58212-X04	A22-69698-002	Diesel
A22-58213-X00	A22-69693-000	Diesel
A22-58213-X01	A22-69693-001	Diesel
A22-58213-X02	A22-69693-000	Diesel
A22-58213-X03	A22-69693-001	Diesel
A22-58213-X04	A22-69693-000	Diesel
A22-58213-X05	A22-69693-001	Diesel
A22-58213-X06	A22-69693-000	Diesel
A22-58213-X07	A22-69693-001	Diesel

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-001 CNG Crossover Chart:

Old IP Part #	New IP Part #	Engine Type
A22-58213-X08	A22-69693-002	CNG
A22-58213-X10	A22-69693-002	CNG
A22-58213-X12	A22-69693-002	CNG
A22-58213-X14	A22-69693-002	CNG

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-002 LPG Crossover Chart:

Old IP Part #	New IP Part #	Engine Type
A22-58213-X16	A22-69693-003	LPG
A22-58213-X18	A22-69693-003	LPG
A22-58213-X20	A22-69693-003	LPG

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D66-03139-000 INST-ACTIA RPLCMNT,ISB07,XOVER	<b>DAIMLER</b>		Daimler Trucks North America	
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	NA	NA		
	ISSUED BY	DATE		
	Q.VAN HEERDEN	11/05/14		
	DESIGNED BY	DATE		
	N.LOVWELACE	11/05/14		
	RESPONSIBLE ENGINEER	DATE	THIRD ANGLE PROJECTION	UNIT OF MEASURE MM
	S.ELLIS	11/05/14		
APPROVED BY	DATE			
E.REYNOLDS	11/05/14			
INST-ACTIA RPLCMNT,ISB07,XOVER				
SUPPLEMENTAL DESCRIPTION 732A1				
PART/DRAWING NUMBER <b>D66-03139</b>		REVISION LETTER -	PAGE 1 of 2	

ISB07 Crossover Chart:

<u>Mod 844: Panel Configuration</u>	<u>Mod 840: Brake Type</u>	<u>Mod 810: Unit of Measure</u>	<u>IP part #</u>	<u>Jumper Part #</u>	<u>Module Part #</u>	<u>Panel Part #</u>
4 Gauge (ATY109494 OR 22-58310-000)	Hydraulic (N/A)	Metric (ATY109495 OR 22-58307-001)	W22-00022-008	A06-84704-000	06-84694-000	06-84700-000
4 Gauge (ATY109494 OR 22-58310-000)	Hydraulic (N/A)	English (ATY109496 OR 22-58307-000)	W22-00022-013	A06-84704-000	06-84694-000	06-84700-000
6 Gauge (ATY109493 OR 22-58309-000)	Hydraulic (N/A)	Metric (ATY109495 OR 22-58307-001)	W22-00022-023	A06-84704-000	06-84694-000	06-84700-000
6 Gauge (ATY109493 OR 22-58309-000)	Hydraulic (N/A)	English (ATY109496 OR 22-58307-000)	W22-00022-019	A06-84704-000	06-84694-000	06-84700-000
6 Gauge (ATY109493 OR 22-58309-000)	Air (ATY109501 OR 22-58310-002)	Metric (ATY109495 OR 22-58307-001)	W22-00022-021	A06-84704-001	06-84694-000	06-84700-001
6 Gauge (ATY109493 OR 22-58309-000)	Air (ATY109502 OR 22-58310-001)	English (ATY109496 OR 22-58307-000)	W22-00022-020	A06-84704-001	06-84694-000	06-84700-001

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	DRAWN BY: Q.VAN HEERDEN	DATE: 12/15/14			
	CHECKED BY: N.LOVELACE	DATE: 12/15/14	THIRD ANGLE PROJECTION 	UNIT OF MEASURE: MM	
	RESPONSIBLE ENGINEER: S.ELLS	DATE: 12/15/14			
	APPROVED BY: E.REYNOLDS	DATE: 12/15/14	DESCRIPTION: INSTR-ACTIA RPLCMNT CLUST		
	SUPPLEMENTAL DESCRIPTION: 732A1				
	DRAWING NUMBER: <b>D66-03368</b>		REVISION LETTER: -	PAGE: 1 of 3	



## Purpose

This document will give brief instructions on the configuration of the Ametek retrofit clusters that are to replace the Actia instrument panels that are in use in ISB02's, MB904's and CNG's.

## Configuration menu

All retrofit clusters need to be configured before use. The configuration menu is entered by pressing and holding the right ⇨ and down ↓ arrows on the instrument panel while turning the ignition on. The menu is shown in Figure 1.

The down arrow can be used in order to scroll through the options on the configuration menu and the right arrow can be used to select the option that is highlighted.

Configuration Menu
1- Transmission Type
2- Brake Type
3- ABS Communication Type

Figure 1: Configuration menu

The configuration menu consists of 3 options. Upon entering the menu the transmission type, brake type and ABS communication type will be able to be set.

### Transmission Type

Selecting option 1 from the configuration menu displays the transmission type setup screen shown in Figure 2. The user will have a choice between the 3 different transmission types: Automatic transmissions, Manual transmissions, or Hybrid Electric transmissions.

Transmission Type
1- Automatic
2- Manual
3- HEV

Figure 2: Transmission type setup screen

The automatic transmission type will be used as default at all times. The user should use the down and right arrow to select the appropriate transmission type that is used on the vehicle.

### Brake System Type

Selecting option 2 from the configuration menu displays the brake type setup screen shown in Figure 3. This menu allows a choice between the 2 different types of braking systems. The user will have the option of choosing between hydraulic and pneumatic brakes.

Brake Type
1- Hydraulic
2- Pneumatic


Figure 3: Brake type setup screen

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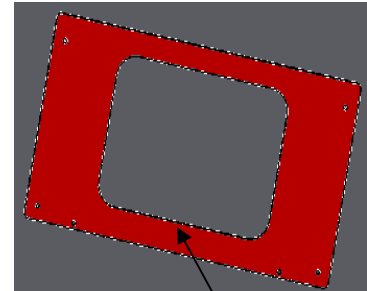
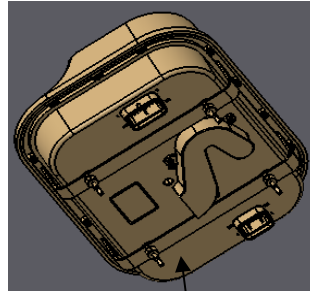
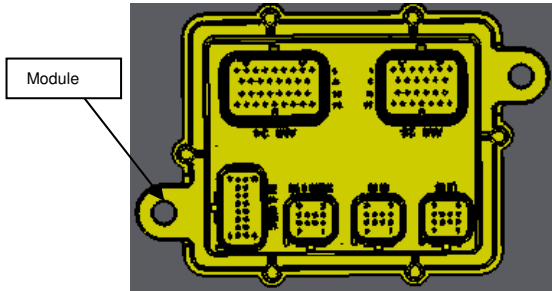
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		N/A		N/A			
		DRAWN BY		DATE			
		M.DAMOIN		08/16/11			
		CHECKED BY		DATE		THIRD ANGLE PROJECTION 	
		D.GRATE		08/16/11			
		RESPONSIBLE ENGINEER		DATE			
		B.REED		08/16/11		UNIT OF MEASURE <b>MM</b>	
APPROVED BY		DATE					
E.REYNOLDS		08/16/11					
DESCRIPTION <b>INSTL-PANEL, INSTRUMENT</b>							
SUPPLEMENTAL DESCRIPTION 732D1							
ITEM/DRAWING NUMBER <b>D06-84898</b>				REVISION LETTER <b>-</b>			
				PAGE <b>1 of 6</b>			

## Service Work Instructions

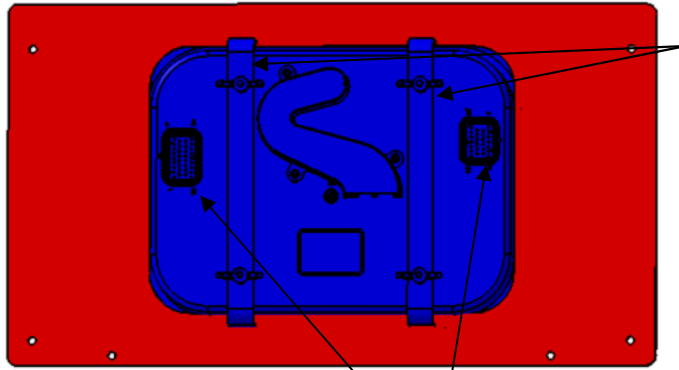
**For Vehicles WITHOUT air brakes, use parts and follow instructions below:**

Item	Name	Part Number	Quantity
1	Module	06-84694-000	1
2	Instrument Cluster	Refer to service notes	1
3	Jumper Harness	A06-84704-000	1
4	Mounting Plate	06-84700-000	1
5	Tie band	23-09796-629	2



1. Remove existing IP from dash and save existing hardware for later use.
2. Install and secure module (1) to existing harness under dash using tie bands (5).
3. Connect existing dash IP harnesses to the module respectively and make any adjustments as needed.
  - The speedometer 16-pin connector mates to the module 16-pin connector.
  - The speedometer 8-pin connector mates to the module 8-pin connector labeled speedo 8-pin.
  - The 8-pin RH warning bank connector mates to the module 8-pin connector labeled RH WB.
  - The 8-pin LH warning bank connector mates to the module 8-pin connector labeled LH WB.
4. Secure the new instrument cluster (2) to the mounting plate (4) using hardware provided with instrument cluster.
5. Connect the jumper harness (3) to the module (1) and the new instrument cluster (2).
6. Secure the instrument cluster (2) and panel (4) to the vehicle dash using hardware removed from step 1. Dash modifications may be required.

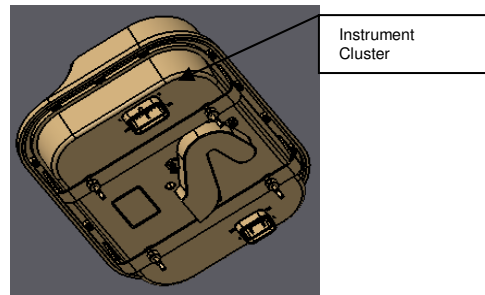
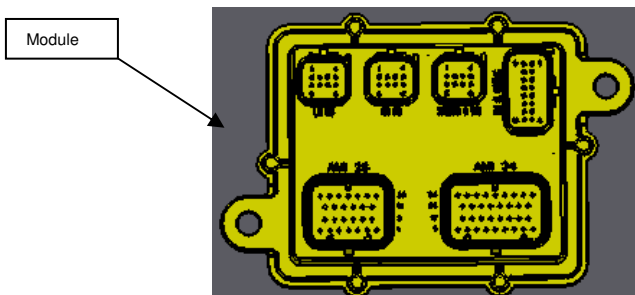
Hardware provided with  
Instrument Cluster for mounting

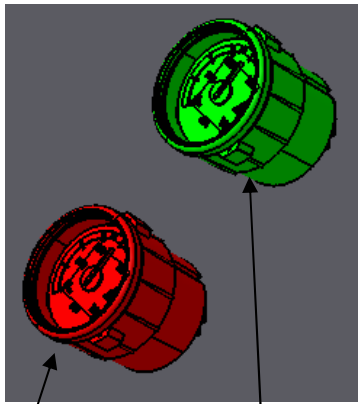


Connect pins to module via jumper harness provided

**For Vehicles WITH air brakes, use parts and follow instructions below:**

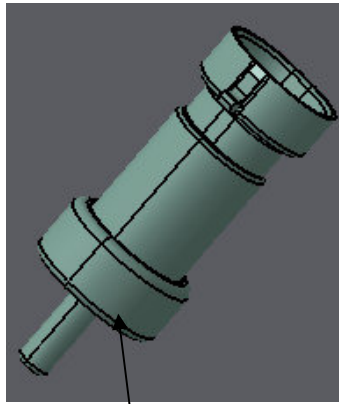
<u>Item</u>	<u>Name</u>	<u>Part Number</u>	<u>Quantity</u>
1	Module	06-84694-000	1
2	Instrument Cluster	Refer to service notes	1
3	Jumper Harness	A06-84704-001	1
4	¼ Inch Connector	SMCKV2HO7 34S	2
5	<sup>5</sup> / <sub>32</sub> Inch Connector	SMCKV2H03 34S	2
6	Primary Air Gauge	A22-63139-400 (US)	1
	Primary Air Gauge	A22-63139-410 (Metric)	1
7	Secondary Air Gauge	A22-63139-401(US)	1
	Secondary Air Gauge	A22-63139-411 (Metric)	1
8	Tee-Pipe	23-09311-001	2
9	Low Air Switch	FSC1749 9192	2
10	Mounting Plate	06-84700-001	1
11	Tie Band	23-09796-629	2
12	Gauge Jumper	A06-41592-007	1
14	<sup>5</sup> / <sub>32</sub> Air Line (Red)	48-00100-512	1.5 FT
15	<sup>5</sup> / <sub>32</sub> Air Line (Green)	48-00100-515	1.5 FT



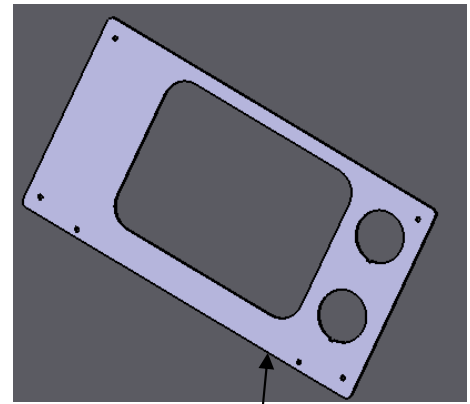


Secondary Air Gauge

Primary Air Gauge



Low Air Switch



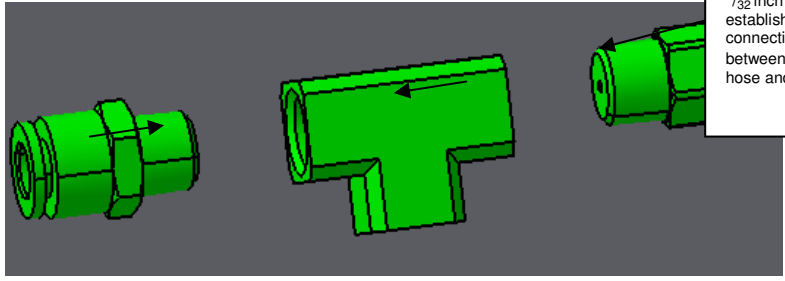
Mounting plate for vehicles with air brakes

1. Remove existing IP from dash and save existing hardware for later use.
2. Connect the  $\frac{1}{4}$  inch connector (4) and the  $\frac{5}{32}$  inch connector (5) to the tee-pipe (8). Connectors to be  $1\frac{1}{2}$  to 2 turns past finger tight. **(VIEW B)**
3. Connect the low air switch (9) to the bottom end of the tee-pipe (8). Twist  $1\frac{1}{2}$  to 2 turns past finger tight. **(VIEW C)**
4. Connect the  $\frac{1}{4}$  inch primary air line from vehicle to one of the  $\frac{1}{4}$  inch connectors (4). **(VIEW C)**
5. Connect the  $\frac{1}{4}$  inch secondary air line from vehicle to the other  $\frac{1}{4}$  inch connector (4). **(VIEW D)**
6. Install and secure module (1) to existing harness under dash using tie bands (11).
7. Connect existing dash IP harnesses to the module respectively and make any adjustments as needed.
  - The speedometer 16-pin connector mates to the module 16-pin connector.
  - The speedometer 8-pin connector mates to the module 8-pin connector labeled speedometer 8-pin.
  - The 8-pin RH warning bank connector mates to the module 8-pin connector labeled RH WB.
  - The 8-pin LH warning bank connector mates to the module 8-pin connector labeled LH WB.
8. Secure primary (6) and secondary (7) air gauges to mounting plate (10). **(VIEW E)**
9. Connect primary and secondary air gauges together via gauge harness jumper (12).
10. Secure the new instrument cluster to the mounting plate (10) using hardware provided with instrument cluster. **(VIEW E)**
11. Connect the  $\frac{5}{32}$  inch primary air line, green (15) from the connector (5) to the primary air gauge (6). **(VIEW C)**
12. Connect the  $\frac{5}{32}$  inch secondary air line, red (14) from the connector (5) to the secondary air gauge (7). **(VIEW D)**
13. Connect the jumper harness (3) to the module, the new instrument cluster (2), the primary air gauge (6), and low air switches (9).

14. Secure the instrument cluster (2) and panel mount (10) to the vehicle dash using hardware removed from step 1. Dash modifications may be required.

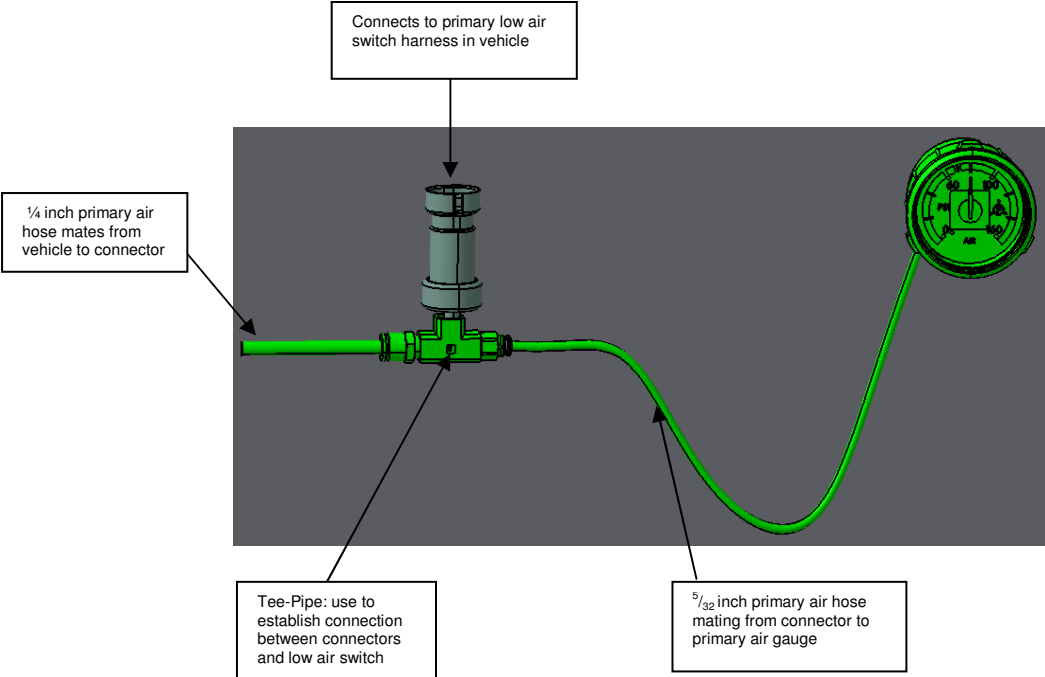
1/4 inch connector establishes connection between 1/4 inch hose and Tee-Pipe

**VIEW B**

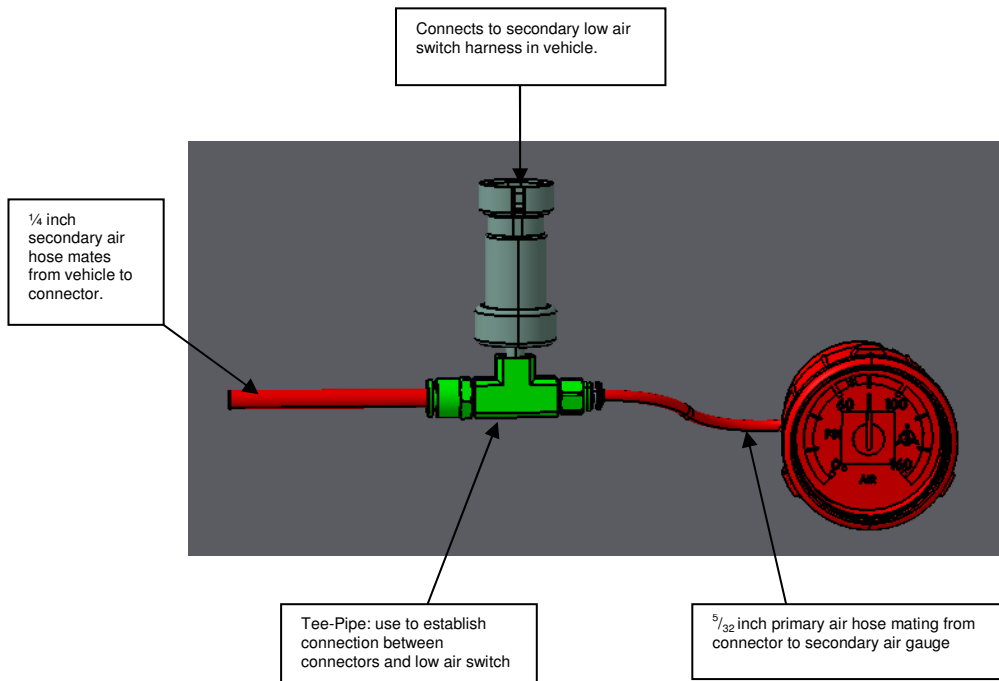


5/32 inch connector establishes connection between 5/32 inch hose and Tee-Pipe

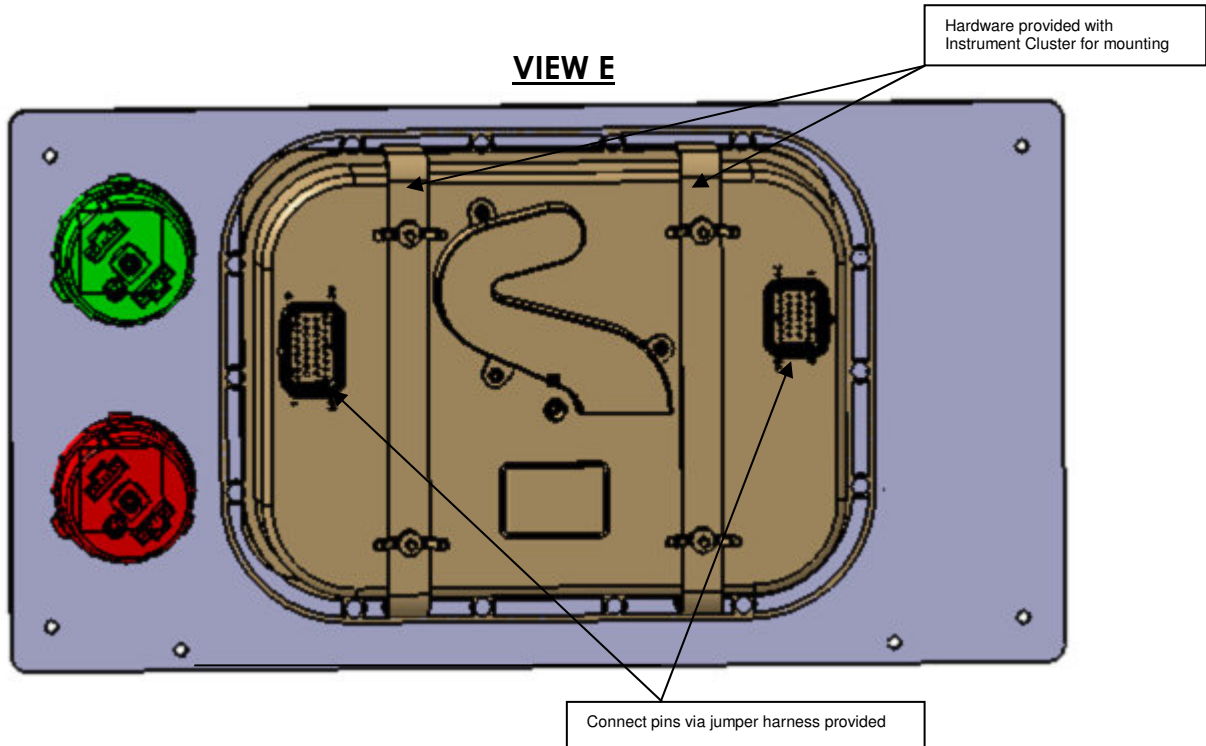
**VIEW C**



**VIEW D**




**VIEW E**





RELEASE NUMBER	REV LTR	REVISION DESCRIPTION	BY	DATE	APPD
P43045-02	-	INITIAL RELEASE	QVH	11/05/14	EPR

DELIVERY MUST CONFORM EXACTLY WITH DRAWING SPECIFICATIONS AND, WHERE REQUIRED BY Q.A., WITH APPROVED Q.A. SAMPLES. ABSOLUTELY NO CHANGES ARE PERMITTED WITHOUT PRIOR APPROVAL BY DTNA. THIS INCLUDES CHANGES TO: SOFTWARE, MATERIALS, INTERNAL COMPONENTS, MANUFACTURING PROCESSES.


ITEM NUMBER D66-03139-000	DESCRIPTION INST-ACTIA RPLCMNT, ISB07,XOVER	<b>DAIMLER</b>		Daimler Trucks North America		
		THE INFORMATION CONTAINED HEREIN IS PROPRIETARY DATA, AND IS NOT FOR DISSEMINATION OR DISCLOSURE, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUBMITTED, EXCEPT AS AUTHORIZED IN WRITING BY DAIMLER TRUCKS NORTH AMERICA LLC (DTNA)				
		MATERIAL APPROVAL	DATE	UNLESS OTHERWISE NOTED, DIMENSIONS AND TOLERANCES ARE DEFINED ACCORDING TO ASME Y14.5M-1994, WITH EXCEPTION PER DTNA 09ENG-WI037		
		N/A	N/A			
		DRAWN BY	DATE			
		Q.VAN HEERDEN	11/05/14			
		CHECKED BY	DATE			
		N.LOVELACE	11/05/14			
		RESPONSIBLE ENGINEER	DATE	THIRD ANGLE PROJECTION 	UNITS OF MEASURE MM	
		S.ELLIS	11/05/14			
APPROVED BY	DATE					
E.REYNOLDS	11/05/14					
DESCRIPTION <b>INST-ACTIA RPLCMNT, ISB07,XOVER</b>						
SUPPLEMENTAL DESCRIPTION 732A1						
ITEM/DRAWING NUMBER <b>D66-03139</b>				REVISION LETTER -		
				PAGE 1 of 2		

## ISB07 Crossover Chart:

<u>Mod 844: Panel Configuration</u>	<u>Mod 840: Brake Type</u>	<u>Mod 810: Unit of Measure</u>	<u>IP part #</u>	<u>Jumper Part #</u>	<u>Module Part #</u>	<u>Panel Part #</u>
4 Gauge ( <b>ATY109494</b> OR <b>22-58310-000</b> )	Hydraulic (N/A)	Metric ( <b>ATY109495</b> OR <b>22-58307-001</b> )	<b>W22-00022-008</b>	A06-84704-000	06-84694-000	06-84700-000
4 Gauge ( <b>ATY109494</b> OR <b>22-58310-000</b> )	Hydraulic (N/A)	English ( <b>ATY109496</b> OR <b>22-58307-000</b> )	<b>W22-00022-013</b>	A06-84704-000	06-84694-000	06-84700-000
6 Gauge ( <b>ATY109493</b> OR <b>22-58309-000</b> )	Hydraulic (N/A)	Metric ( <b>ATY109495</b> OR <b>22-58307-001</b> )	<b>W22-00022-023</b>	A06-84704-000	06-84694-000	06-84700-000
6 Gauge ( <b>ATY109493</b> OR <b>22-58309-000</b> )	Hydraulic (N/A)	English ( <b>ATY109496</b> OR <b>22-58307-000</b> )	<b>W22-00022-019</b>	A06-84704-000	06-84694-000	06-84700-000
6 Gauge ( <b>ATY109493</b> OR <b>22-58309-000</b> )	Air ( <b>ATY109501</b> OR <b>22-58310-002</b> )	Metric ( <b>ATY109495</b> OR <b>22-58307-001</b> )	<b>W22-00022-021</b>	A06-84704-001	06-84694-000	06-84700-001
6 Gauge ( <b>ATY109493</b> OR <b>22-58309-000</b> )	Air ( <b>ATY109502</b> OR <b>22-58310-001</b> )	English ( <b>ATY109496</b> OR <b>22-58307-000</b> )	<b>W22-00022-020</b>	A06-84704-001	06-84694-000	06-84700-001

RELEASE NUMBER	REV LTR	REVISION DESCRIPTION	BY	DATE	APPD
P43045-01	-	INITIAL RELEASE	QVH	11/17/14	EPR

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ITEM NUMBER	D66-03139-002	DESCRIPTION	INST-ACTIA RPLCMNT, LPG,XOVER	ITEM NUMBER	D66-03139-001	DESCRIPTION	INST-ACTIA RPLCMNT,CNG,XOVER	ITEM NUMBER	D66-03139-000	DESCRIPTION	INST-ACTIA RPLCMNT,DIESL,XOVER
<b>DAIMLER</b>											
Daimler Trucks North America											
<small>THE INFORMATION CONTAINED HEREIN IS PROPRIETARY DATA, AND IS NOT FOR DISSEMINATION OR DISCLOSURE, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUBMITTED, EXCEPT AS AUTHORIZED IN WRITING BY DAIMLER TRUCKS NORTH AMERICA LLC (DTNA)</small>											
MATERIAL APPROVAL						DATE					
N/A						N/A					
DRAWN BY						DATE					
Q.VAN HEERDEN						11/17/14					
CHECKED BY						DATE					
N.LOVELACE						11/17/14					
RESPONSIBLE ENGINEER						DATE					
S.ELLIS						11/17/14					
APPROVED BY						DATE					
E.REYNOLDS						11/17/14					
UNLESS OTHERWISE NOTED, DIMENSIONS AND TOLERANCES ARE DEFINED ACCORDING TO ASME Y14.5M-1994, WITH EXCEPTION PER DTNA 09ENG-WI037											
THIRD ANGLE PROJECTION 											
UNITS OF MEASURE MM											
DESCRIPTION <b>INST-ACTIA RPLCMNT,PRE07,XOVER</b>											
SUPPLEMENTAL DESCRIPTION 732A1											
ITEM/DRAWING NUMBER <b>D66-03190</b>								REVISION LETTER -		PAGE 1 of 4	

## -000 Diesel Crossover Chart:

<u>Old IP Part #</u>	<u>New IP Part #</u>	<u>Engine Type</u>
A22-58212-X00	A22-69698-000	Diesel
A22-58212-X01	A22-69698-001	Diesel
A22-58212-X02	A22-69698-000	Diesel
A22-58212-X03	A22-69698-001	Diesel
A22-58212-X04	A22-69698-002	Diesel
A22-58213-X00	A22-69693-000	Diesel
A22-58213-X01	A22-69693-001	Diesel
A22-58213-X02	A22-69693-000	Diesel
A22-58213-X03	A22-69693-001	Diesel
A22-58213-X04	A22-69693-000	Diesel
A22-58213-X05	A22-69693-001	Diesel
A22-58213-X06	A22-69693-000	Diesel
A22-58213-X07	A22-69693-001	Diesel

## -001 CNG Crossover Chart:


<b>Old IP Part #</b>	<b>New IP Part #</b>	<b>Engine Type</b>
A22-58213-X08	A22-69693-002	CNG
A22-58213-X10	A22-69693-002	CNG
A22-58213-X12	A22-69693-002	CNG
A22-58213-X14	A22-69693-002	CNG

## -002 LPG Crossover Chart:

<b>Old IP Part #</b>	<b>New IP Part #</b>	<b>Engine Type</b>
A22-58213-X16	A22-69693-003	LPG
A22-58213-X18	A22-69693-003	LPG
A22-58213-X20	A22-69693-003	LPG

RELEASE NUMBER	REV LTR	REVISION DESCRIPTION	BY	DATE	APPD
P43045-01	-	INITIAL RELEASE	QVH	12/18/14	EPR

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ITEM NUMBER <b>D66-03368-000</b> DESCRIPTION <b>INSTR-ACTIA RPLCMNT CLUST</b>	<b>DAIMLER</b>		Daimler Trucks North America		
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	MATERIAL APPROVAL N/A	DATE N/A	UNLESS OTHERWISE NOTED, DIMENSIONS AND TOLERANCES ARE DEFINED ACCORDING TO ASME STANDARD Y14.5M-1994, WITH EXCEPTION PER DTNA 09ENG-W1037		
	DRAWN BY Q.VAN HEERDEN	DATE 12/18/14			
	CHECKED BY N.LOVELACE	DATE 12/18/14			
	RESPONSIBLE ENGINEER S.ELLIS	DATE 12/18/14	THIRD ANGLE PROJECTION		UNIT OF MEASURE <b>MM</b>
	APPROVED BY E.REYNOLDS	DATE 12/18/14			
	DESCRIPTION <b>INSTR-ACTIA RPLCMNT CLUST</b>				
	SUPPLEMENTAL DESCRIPTION 732A1				
	ITEM/DRAWING NUMBER <b>D66-03368</b>		REVISION LETTER -	PAGE 1 of 3	

## Purpose

This document will give brief instructions on the configuration of the Ametek retrofit clusters that are to replace the Actia instrument panels that are in use in ISB02's, MB904's and CNG's.

## Configuration menu

All retrofit clusters need to be configured before use. The configuration menu is entered by pressing and holding the right ⇨ and down ↓ arrows on the instrument panel while turning the ignition on. The menu is shown in Figure 1.

The down arrow can be used in order to scroll through the options on the configuration menu and the right arrow can be used to select the option that is highlighted.

Configuration Menu
1- Transmission Type
2- Brake Type
3- ABS Communication Type

Figure 1: Configuration menu

The configuration menu consists of 3 options. Upon entering the menu the transmission type, brake type and ABS communication type will be able to be set.

### Transmission Type

Selecting option 1 from the configuration menu displays the transmission type setup screen shown in Figure 2. The user will have a choice between the 3 different transmission types: Automatic transmissions, Manual transmissions, or Hybrid Electric transmissions.

Transmission Type
1- Automatic
2- Manual
3- HEV

Figure 2: Transmission type setup screen

The automatic transmission type will be used as default at all times. The user should use the down and right arrow to select the appropriate transmission type that is used on the vehicle.

### Brake System Type

Selecting option 2 from the configuration menu displays the brake type setup screen shown in Figure 3. This menu allows a choice between the 2 different types of braking systems. The user will have the option of choosing between hydraulic and pneumatic brakes.

Brake Type
1- Hydraulic
2- Pneumatic

Figure 3: Brake type setup screen



The default selection for brake system type will be hydraulic brakes. The user should use the arrows to change the selection to pneumatic if this is what is used on the vehicle.

### **ABS Communication Type**

Selecting option 3 from the configuration menu displays the ABS communication type setup screen that allows a choice between the two different types of ABS communication types. Users will have the option of choosing between J1939 and Hardwire communications.



Figure 4: ABS communication type setup screen

Vehicles with J1939 communication will transfer and receive messages/directions through the J1939 CANBUS for ABS failure while vehicles with hardwires receive ABS failure information from dedicated hardwires.

The default selection for ABS Communication Type is Hardwire. This should be changed to J1939 if necessary.

# HYDRAULIC

RELEASE #	REV LTR	ZONE	REVISION DESCRIPTION	BY	DATE	APPD
P56417-01	A	-	REDRAWN IN CAPITAL	DW8	10/20/17	EPR
	A1	2D	ADDED ENGINE SHUTDOWN OVERRIDE			

## ACTIA TO AMI INTERFACE MODULE

### DASH\_H\_IP\_INTFC\_MOD\_C2A 23-13151-029

### DASH\_H\_IP\_C2A 23-13151-029

DASH_H_IP_C2 (SPEEDO 16 PIN)	DESCRIPTION	DASH_H_IP_C2A	DASH_H_IP_C2A
1	GROUND FOR PCB	2	GROUND FOR PCB
2	BATTERY POWER	1	BATTERY POWER
3	ENGINE SHUTDOWN OVERRIDE SWITCH INPUT	3	ENGINE SHUTDOWN OVERRIDE SWITCH INPUT (A1)
4	(-) PANEL BACKLIGHT GROUND	4	(-) PANEL BACKLIGHT GROUND
5	RIGHT TURN INDICATOR	6	RIGHT TURN INDICATOR
6	HIGH BEAM INDICATOR	7	HIGH BEAM INDICATOR
7	WHEEL CHAIR LIFT ACTIVE SWITCH INPUT	8	WHEEL CHAIR LIFT ACTIVE SWITCH INPUT
8	IGNITION POWER	10	IGNITION POWER
9	AUX HEATER DISABLED	12	AUX HEATER DISABLED
10	(+) PANEL BACKLIGHT POWER	13	(+) PANEL BACKLIGHT POWER
11	LOW FUEL PRESSURE SWITCH INPUT	14	LOW FUEL PRESSURE SWITCH INPUT
12	LEFT TURN INDICATOR	15	LEFT TURN INDICATOR
13	PARK BRAKE SWITCH INPUT	17	PARK BRAKE SWITCH INPUT
14	ABS SWITCH INPUT	19	ABS SWITCH INPUT
15	HIGH IDLE REQUEST SWITCH INPUT	20	HIGH IDLE REQUEST SWITCH INPUT
16	CRUISE SET/DEC SWITCH INPUT	21	CRUISE SET/DEC SWITCH INPUT
	CRUISE ON/OFF SWITCH INPUT	22	CRUISE ON/OFF SWITCH INPUT
	REGENERATION INHIBIT SWITCH INPUT	23	REGENERATION INHIBIT SWITCH INPUT
	EXHAUST BRAKE SWITCH INPUT	24	EXHAUST BRAKE SWITCH INPUT
	FORCE REGENERATION SWITCH INPUT	25	FORCE REGENERATION SWITCH INPUT
	HYDRAULIC BRAKE FAULT	26	HYDRAULIC BRAKE FAULT
	CHANGE AIR FILTER SWITCH INPUT	27	CHANGE AIR FILTER SWITCH INPUT
	SERVICE BRAKE SWITCH INPUT	30	SERVICE BRAKE SWITCH INPUT
	CRUISE RES/ACC SWITCH INPUT	31	CRUISE RES/ACC SWITCH INPUT
	AUDIBLE ALARM SWITCH INPUT	32	AUDIBLE ALARM SWITCH INPUT
	WATER IN FUEL SWITCH INPUT	33	WATER IN FUEL SWITCH INPUT
	SEAT BELT SWITCH INPUT	34	SEAT BELT SWITCH INPUT

DASH_H_IP_C3 (SPEEDO 8 PIN)	DESCRIPTION	DASH_H_IP_C1A	DASH_H_IP_C1A
1	EXHAUST BRAKE SWITCH INPUT	24	EXHAUST BRAKE SWITCH INPUT
2	FORCE REGENERATION SWITCH INPUT	25	FORCE REGENERATION SWITCH INPUT
3	HYDRAULIC BRAKE FAULT	26	HYDRAULIC BRAKE FAULT
4	CHANGE AIR FILTER SWITCH INPUT	27	CHANGE AIR FILTER SWITCH INPUT
5	SERVICE BRAKE SWITCH INPUT	30	SERVICE BRAKE SWITCH INPUT
6	CRUISE RES/ACC SWITCH INPUT	31	CRUISE RES/ACC SWITCH INPUT
7	AUDIBLE ALARM SWITCH INPUT	32	AUDIBLE ALARM SWITCH INPUT
8	WATER IN FUEL SWITCH INPUT	33	WATER IN FUEL SWITCH INPUT

DASH_H_IP_C4 (RH WB)	DESCRIPTION	DASH_H_IP_C1A	DASH_H_IP_C1A
1			
2			
3			
4			
5			
6			
7			
8			

### DASH\_H\_IP\_INTFC\_MOD\_C1A 23-13151-028

### DASH\_H\_IP\_C1A 23-13151-028

DASH_H_IP_C1 (LH WB)	DESCRIPTION	DASH_H_IP_C1A	DASH_H_IP_C1A
1	(+) CNG FUEL PRESSURE	9	(+) CNG FUEL PRESSURE
2	(+) FUEL LEVEL	10	(+) FUEL LEVEL
3	(-) FUEL LEVEL/CNG FUEL PRESSURE	11	(-) FUEL LEVEL/CNG FUEL PRESSURE
4	CAN TERMINATING RESISTOR, 120 OHMS	14	CAN TERMINATING RESISTOR, 120 OHMS
5	BRAKE POWER SENSE	16	BRAKE POWER SENSE
6	(+) J1587/J1708/GM LAN NETWORK	20	(+) J1587/J1708/GM LAN NETWORK
7	(-) J1587/J1708/GM LAN NETWORK	21	(-) J1587/J1708/GM LAN NETWORK
8	THROTTLE DISABLE	22	THROTTLE DISABLE

METRIC	AWG
mm <sup>2</sup>	GA
0.35	22
0.50	20
0.80	18
1.00	16
2.00	14
3.00	12
5.00	10
8.00	8
13.00	6
19.00	4
32.00	2
40.00	1
50.00	0
62.00	2/0
81.00	3/0
103.00	4/0

## MOD 81B (DIM): DRIVERS INFORMATION MODULE AND PANEL LPS

- 1 MATES TO VEHICLE HARNESS
- 2 WIRING ONLY PRESENT WITH PNEU BRAKE UNITS

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MATERIAL APPROVAL	DATE	UNLESS OTHERWISE NOTED, DIMENSIONS AND TOLERANCES ARE DEFINED ACCORDING TO ASME STANDARD Y14.5M-1994, WITH EXCEPTIONS PER DTNA 09ENG-W1037	
N/A	N/A		
DRAWN BY	DATE		
D.WILSON	10/20/17		
CHECKED BY	DATE		
M.PHILLIPS	10/20/17		
RESPONSIBLE ENGINEER	DATE	THIRD ANGLE PROJECTION	UNITS OF MEASURE
S.ELLIS	10/20/17		MM
APPROVED BY	DATE		
E.REYNOLDS	10/20/17		
DESCRIPTION			
DWG-WRG,AMI,ACTIA,JUMPER			
SUPPLEMENTAL DESCRIPTION		MT	
81BB4			
ITEM NUMBER	DESCRIPTION	REV. LETTER	SHEET NUMBER
G06-84733-000	WRG-AMI,ACTIA,JUMPER	A	1 OF 2

**PNEUMATIC**

AIR PRESSURE SWITCH  
SECONDARY TANK LOW

BK\_SVCE\_CHAS\_F\_O\_SW\_LO\_AIR\_2  
23-13142-402

BK\_SVCE\_CHAS\_F\_O\_SW\_LO\_AIR\_1  
23-13142-402

PRIMARY TANK LOW  
AIR PRESSURE SWITCH

DASH\_H\_IP\_C2  
(SPEEDO 16 PIN)

DASH\_H\_IP\_C3  
(SPEEDO 8 PIN)

DASH\_H\_IP\_C4  
(RH WB)

DASH\_H\_IP\_C1  
(LH WB)

METRIC	AWG
mm <sup>2</sup>	GA
0.35	22
0.50	20
0.80	18
1.00	16
2.00	14
3.00	12
5.00	10
8.00	8
13.00	6
19.00	4
32.00	2
40.00	1
50.00	0
62.00	2/0
81.00	3/0
103.00	4/0

ACTIA TO AMI INTERFACE MODULE

DASH\_H\_IP\_INTFC\_MOD\_C2A  
23-13151-029

DASH\_H\_IP\_C2A  
23-13151-029

DASH\_H\_IP\_INTFC\_MOD\_C1A  
23-13151-028

DASH\_H\_IP\_C1A  
23-13151-028

DASH\_H\_IP\_C3A  
23-13151-601

1	GROUND FOR PCB	2	2	GND # 1204 (BK) 20/.5 TXL
2	BATTERY POWER	1	1	14 # 1105 (R) 18/.8 TXL
3	ENGINE SHUTDOWN OVERRIDE SWITCH INPUT	3	3	440U # 1512 (GY) 20/.5 TXL
4	(-) PANEL BACKLIGHT GROUND	4	4	GND # 1204 (BK) 20/.5 TXL
5	RIGHT TURN INDICATOR	6	6	38R # 1313 (DKG) 20/.5 TXL
6	HIGH BEAM INDICATOR	7	7	21H # 1301 (LTG) 20/.5 TXL
7	WHEEL CHAIR LIFT ACTIVE SWITCH INPUT	8	8	236E # 1803 (W) 20/.5 TXL
8	IGNITION POWER	10	10	52D # 1102 (PK) 18/.8 TXL
9	AUX HEATER DISABLED	12	12	91L # 2305 (LTBL) 20/.5 TXL
10	(+) PANEL BACKLIGHT POWER	13	13	29A # 1304 (BR) 20/.5 TXL
11	LOW FUEL PRESSURE SWITCH INPUT	14	14	182A # 1404 (PK-W) 20/.5 TXL
12	LEFT TURN INDICATOR	15	15	38L # 1313 (Y) 20/.5 TXL
13	PARK BRAKE SWITCH INPUT	17	17	125 # 1427 (R-W) 20/.5 TXL
14	ABS SWITCH INPUT	19	19	376L # 1701 (O) 20/.5 TXL
15	HIGH IDLE REQUEST SWITCH INPUT	20	20	439U # 1510 (PRP) 20/.5 TXL
16	CRUISE SET/DEC SWITCH INPUT	21	21	440E # 1508 (GY) 20/.5 TXL
1	CRUISE ON/OFF SWITCH INPUT	22	22	440D # 1504 (GY) 20/.5 TXL
2	REGENERATION INHIBIT SWITCH INPUT	23	23	492M # 1512 (GY) 20/.5 TXL
3	EXHAUST BRAKE SWITCH INPUT	24	24	203D # 1502 (R-W) 20/.5 TXL
4	FORCE REGENERATION SWITCH INPUT	25	25	492K # 1512 (GY) 20/.5 TXL
5	HYDRAULIC BRAKE FAULT	26	26	388H # 1708 (R-W) 20/.5 TXL
6	CHANGE AIR FILTER SWITCH INPUT	27	27	183A # 1408 (T) 20/.5 TXL
7	SERVICE BRAKE SWITCH INPUT	30	30	36G # 1316 (R-W) 20/.5 TXL
8	CRUISE RES/ACC SWITCH INPUT	31	31	440F # 1508 (GY) 20/.5 TXL
1	AUDIBLE ALARM SWITCH INPUT	32	32	122 # 1322 (DKBL) 20/.5 TXL
2	WATER IN FUEL SWITCH INPUT	33	33	286 # 1402 (PK-W) 20/.5 TXL
3	SEAT BELT SWITCH INPUT	34	34	435 # 2104 (T-W) 20/.5 TXL

1	J1939 (+)	1	1	1939+C # 1603 (Y) 20/.5 HDP1
2	J1939 (-)	8	8	1939-C # 1603 (DKG) 20/.5 HDP1
3	ENGINE RUNNING OUTPUT	7	7	453R # 1512 (GY) 18/.8 TXL
4	VEHICLE MOVING OUTPUT	6	6	453S # 1803 (W) 20/.5 TXL
5	(+) CNG FUEL PRESSURE	9	9	47 # 1403 (PK-W) 20/.5 TXL
6	(+) FUEL LEVEL	10	10	47 # 1403 (PK-W) 20/.5 TXL
7	(-) FUEL LEVEL/CNG FUEL PRESSURE	11	11	47G # 1403 (PK-W) 20/.5 TXL
8	CAN TERMINATING RESISTOR, 120 OHMS	14	14	1939+C # 1603 (Y) 20/.5 TXL
1	BRAKE POWER SENSE	16	16	36 # 1316 (R-W) 20/.5 TXL
2	(+) J1587/J1708/GM LAN NETWORK	20	20	1587+ # 1601 (DKG) 20/.5 TXL
3	(-) J1587/J1708/GM LAN NETWORK	21	21	1587- # 1601 (O) 20/.5 TXL
4	THROTTLE DISABLE	22	22	439T # 1506 (GY) 20/.5 TXL

16	LOW AIR INPUT	16	16	18 # 1427 (R-W) 20/.5 TXL
17	GROUND FOR PCB	2	2	GND # 1204 (BK) 20/.5 TXL
18	BATTERY POWER	1	1	14 # 1105 (R) 18/.8 TXL
19	ENGINE SHUTDOWN OVERRIDE SWITCH INPUT	3	3	440U # 1512 (GY) 20/.5 TXL
20	(-) PANEL BACKLIGHT GROUND	4	4	GND # 1204 (BK) 20/.5 TXL
21	RIGHT TURN INDICATOR	6	6	38R # 1313 (DKG) 20/.5 TXL
22	HIGH BEAM INDICATOR	7	7	21H # 1301 (LTG) 20/.5 TXL
23	WHEEL CHAIR LIFT ACTIVE SWITCH INPUT	8	8	236E # 1803 (W) 20/.5 TXL
24	IGNITION POWER	10	10	52D # 1102 (PK) 18/.8 TXL
25	AUX HEATER DISABLED	12	12	91L # 2305 (LTBL) 20/.5 TXL
26	(+) PANEL BACKLIGHT POWER	13	13	29A # 1304 (BR) 20/.5 TXL
27	LOW FUEL PRESSURE SWITCH INPUT	14	14	182A # 1404 (PK-W) 20/.5 TXL
28	LEFT TURN INDICATOR	15	15	38L # 1313 (Y) 20/.5 TXL
29	PARK BRAKE SWITCH INPUT	17	17	125 # 1427 (R-W) 20/.5 TXL
30	ABS SWITCH INPUT	19	19	376L # 1701 (O) 20/.5 TXL
31	HIGH IDLE REQUEST SWITCH INPUT	20	20	439U # 1510 (PRP) 20/.5 TXL
32	CRUISE SET/DEC SWITCH INPUT	21	21	440E # 1508 (GY) 20/.5 TXL
33	CRUISE ON/OFF SWITCH INPUT	22	22	440D # 1504 (GY) 20/.5 TXL
34	REGENERATION INHIBIT SWITCH INPUT	23	23	492M # 1512 (GY) 20/.5 TXL
35	EXHAUST BRAKE SWITCH INPUT	24	24	203D # 1502 (R-W) 20/.5 TXL
36	FORCE REGENERATION SWITCH INPUT	25	25	492K # 1512 (GY) 20/.5 TXL
37	HYDRAULIC BRAKE FAULT	26	26	388H # 1708 (R-W) 20/.5 TXL
38	CHANGE AIR FILTER SWITCH INPUT	27	27	183A # 1408 (T) 20/.5 TXL
39	SERVICE BRAKE SWITCH INPUT	30	30	36G # 1316 (R-W) 20/.5 TXL
40	CRUISE RES/ACC SWITCH INPUT	31	31	440F # 1508 (GY) 20/.5 TXL
41	AUDIBLE ALARM SWITCH INPUT	32	32	122 # 1322 (DKBL) 20/.5 TXL
42	WATER IN FUEL SWITCH INPUT	33	33	286 # 1402 (PK-W) 20/.5 TXL
43	SEAT BELT SWITCH INPUT	34	34	435 # 2104 (T-W) 20/.5 TXL

5	5	GND1 # 1204 (BK) 22/.35 TXL
6	6	29A # 1304 (BR) 22/.35 TXL

<p><b>DAIMLER</b></p> <p>THE INFORMATION CONTAINED HEREIN IS CONFIDENTIAL AND PROPRIETARY TO DAIMLER TRUCKS NORTH AMERICA LLC (DTNA) AND SHALL NOT BE COPIED, REPRODUCED, DISCLOSED, PUBLISHED, OR USED FOR ANY PURPOSE WITHOUT THE EXPRESS WRITTEN PERMISSION OF DTNA.</p>		Daimler Trucks North America		
		UNLESS OTHERWISE NOTED, DIMENSIONS AND TOLERANCES ARE DEFINED ACCORDING TO ASME STANDARD Y14.5M-1994, WITH EXCEPTIONS PER DTNA 09ENG-W1037		
<p>ITEM NUMBER: G06-84733-000</p> <p>DESCRIPTION: WRG,AMI,ACTIA,JUMPER</p>	MATERIAL APPROVAL	DATE	<p>THIRD ANGLE PROJECTION</p>	<p>UNITS OF MEASURE: MM</p>
	N/A	N/A		
	DRAWN BY: D.WILSON	DATE: 10/20/17		
	CHECKED BY: M.PHILLIPS	DATE: 10/20/17		
RESPONSIBLE ENGINEER: S.ELLIS	DATE: 10/20/17	<p>DESCRIPTION: DWG-WRG,AMI,ACTIA,JUMPER</p>		
APPROVED BY: E.REYNOLDS	DATE: 10/20/17	<p>ITEM/DRAWING NUMBER: G06-84733</p>		
		REV. LETTER: A	SHEET NUMBER: 2 OF 2	