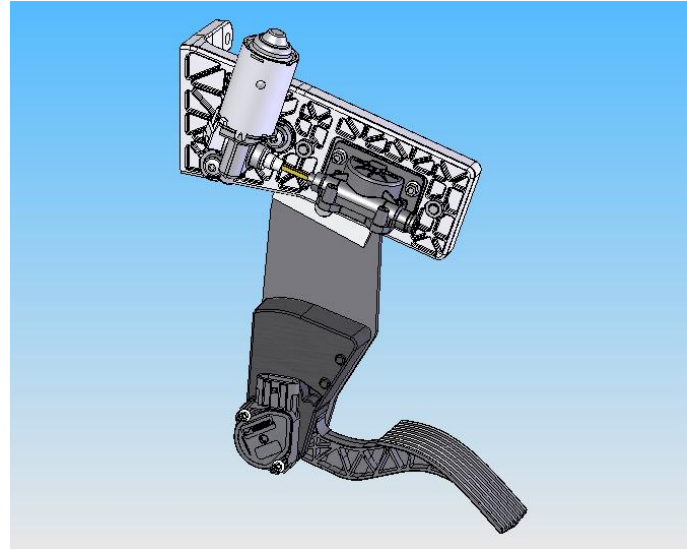


Features:

- 3" Horizontal Pedal Adjustment
- 12 VDC Adjuster Motor
- FMVSS 124 and 302 compliant
- -40°C to + 85°C Operation
- 20° ± 1° Angular Pedal Rotation
- Contact Sensor
- Ratiometric APS Output
- Isolated APS/IVS Functions
- Form C IVS Output
- Sensor Electronics IP66 Sealed
- Highly EMI resistant
- +5V Sensor Operation



Applications:


- Motorhome, Bus, Medium and Heavy Trucks
- Used with the following engines:
 - Cummins (prior to 2007)
 - Detroit Diesel III, IV, V
 - Mack
 - MB NAFTA

Description:

The APU (adjustable pedal unit) throttle pedal is an adjustable electronic firewall mounted (suspended) throttle pedal for use primarily in motorhomes, buses, and medium and heavy trucks. The APU throttle pedal is always used with an APU brake pedal. The two pedal assemblies are connected by a flexible drive cable which provides synchronization of the two pedals.

The driver uses a switch or other means provided by the vehicle manufacturer to adjust the position of the pedals. The electric motor drives the input shaft of the gearbox on the throttle pedal adjuster. The output shaft of the gearbox on the throttle pedal adjuster is connected to the flexible drive cable which in turn drives the input shaft of the gearbox on the brake pedal adjuster.

The electronic pedal is assembled with a sensor that provides a voltage proportional to the angular displacement of the treadle.

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		Williams Customer Specification Form					
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QEMS Representative	Mary Knight	Process Owner	Michael Cooper	Department Manager	Scott Thiel		

Absolute Maximum Electrical/Mechanical Ratings

Supply Voltage (APS, IVS)	-5.5 VDC to +5.5 VDC
Output Current (APS, IVS)	10 mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
APS Short Circuit Duration to GND or VCC	Indefinite
Static Load Limit	250 Lb normal to treadle at 4.75" from pivot
Side Load Limit	75 Lb lateral to treadle at 6" from pivot
Upward Load Limit	75 Lb normal to treadle at 6" from pivot

Operation of this device beyond absolute maximum ratings may result in permanent damage.

Electrical Specifications: Pedal Assembly


Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V _{CC}	Supply Voltage			5		V
I _{CC}	APS Supply Current					mA
V _{CT}	CT Output		11	13	15	%VCC
V _{WOT}	WOT Output	Pedal fully actuated	75	77	79	%VCC
V _{Span}	Span output, APS		60	64	68	%VCC
IVS ₁ NC	Idle Validation Switch 1		V _{CT} + (.03*V _{Span})		V _{CT} + (.10*V _{Span})	%VCC
IVS ₂ NO	Idle Validation Switch 2		V _{CT} + (.03*V _{Span})		V _{CT} + (.10*V _{Span})	%VCC

Electrical Specifications: Pedal Adjuster Motor

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Voltage		9	12	18	V
Current Draw	12.6 V ± 0.5V	1	1.8	5	A
Stall Current	12.0 V		10		A
Overload Protection	Stall	Integral PTC Device			
Radiated Emissions		Meets GM 9114P			
Conducted Transient Emissions		Meets GM 9115P			

Environmental Validation

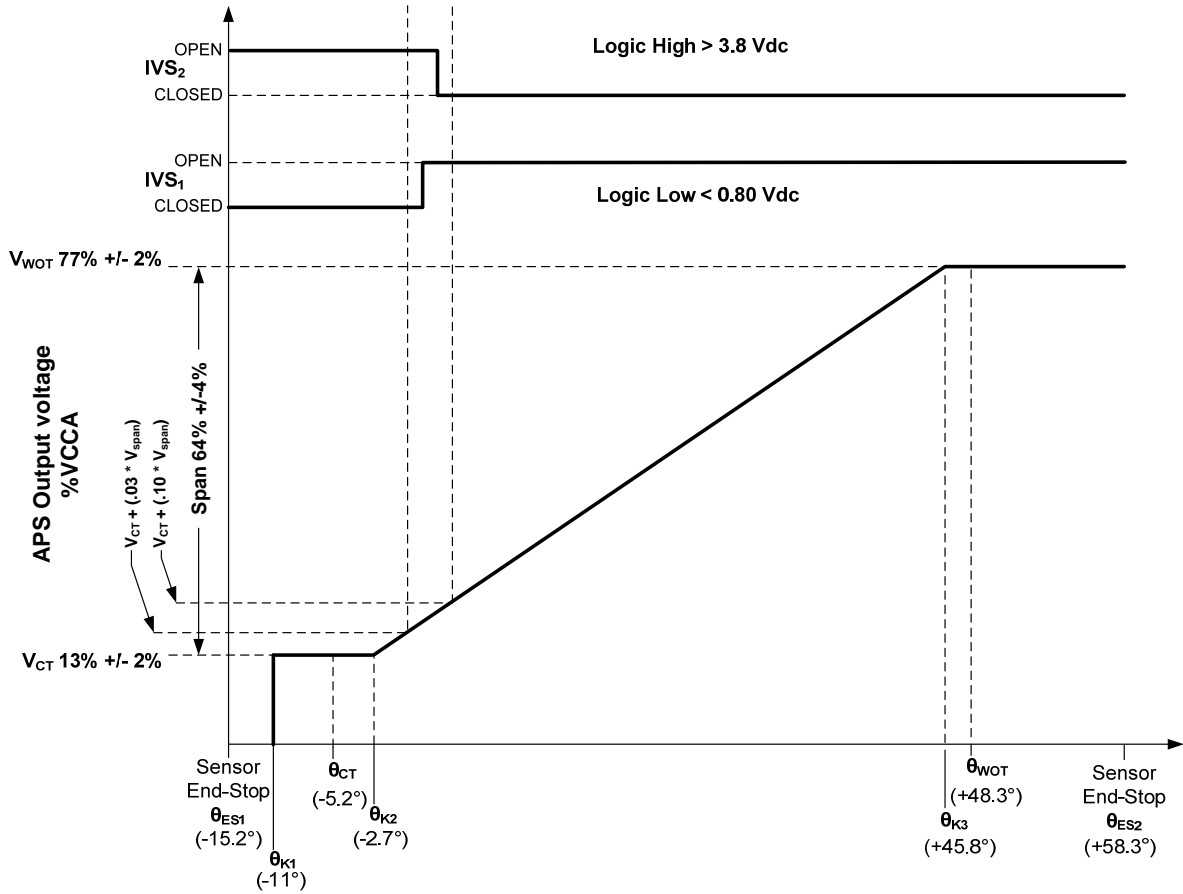
Thermal Cycle:	Refer to Williams Spec WDS-010
Thermal Stress:	
Thermal Shock:	
Humidity:	
Vibration:	
Salt Spray:	
Dust Exposure:	
Chemical Immersion:	
Pressure Wash:	
Mechanical Shock:	
EMI Resistance:	Refer to SAE J1113-1


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Mechanical Validation

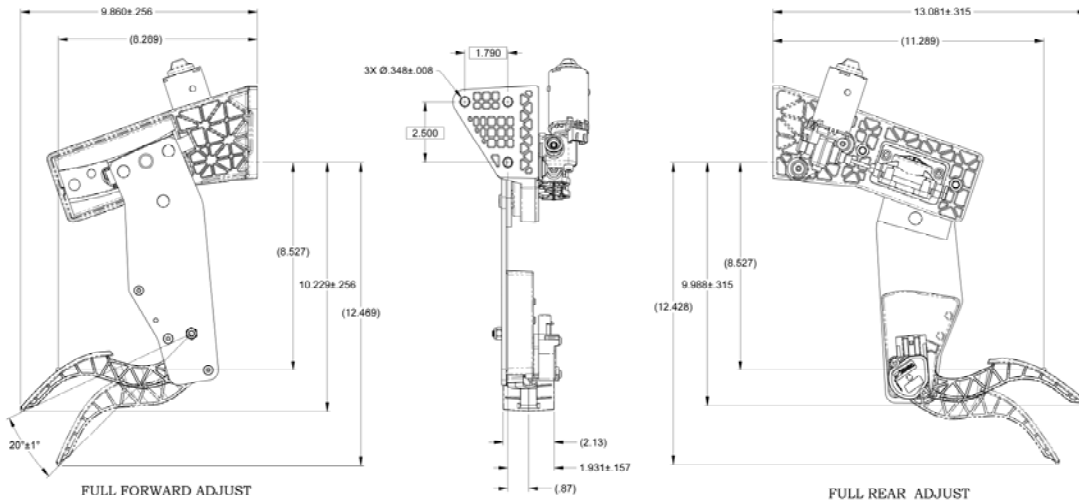
Full Stroke Pedal Actuation Cycles:	3x10 ⁶ at 30Lb
Full Stroke Adjuster Cycles:	15,000

Typical Pedal Sensor Output Characteristics



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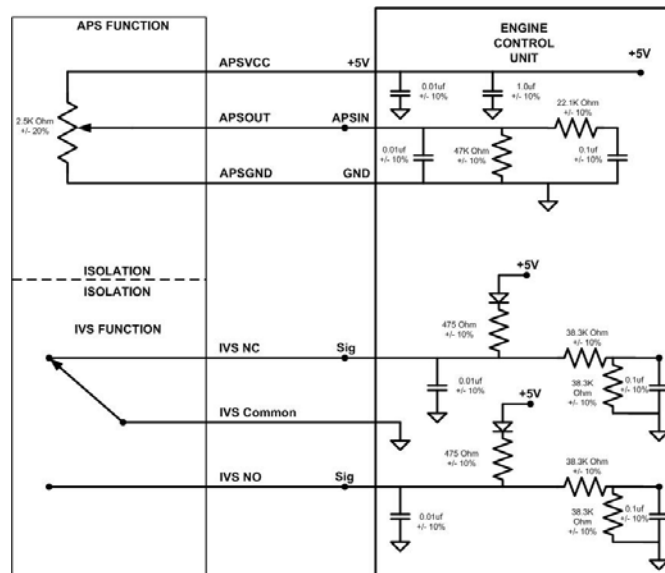
Mechanical Dimensions and Characteristics (for reference only)




Applications Information:

Load Circuit

The following figure shows suggested interconnection and typical compatible ECU internal load circuits.



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Installation Instructions

- The APU throttle pedal is assembled in the retracted position (fully forward in vehicle). The position is factory set and should not be adjusted until after installation in the vehicle. Synchronization may be lost if the throttle pedal is adjusted before connecting the drive cable to the brake pedal, or if the drive cable comes loose.
- Refer to Service Bulletin 129945 for Instructions on adjusting the step-over height, installing the drive cable, and synchronizing the pedals.

Special Considerations

- The 133420 APU throttle does not have the flexible drive cable.

Referenced Documents:


- Williams Controls DWG # 133420 Throttle Control APU
- Williams Controls Specification # WCS-133284
- Williams Controls Specification # WDS-010
- Williams Controls Service Bulletin 129947
- Williams Controls Service Bulletin 129945
- GM9114P – Electromagnetic Compatibility Component Test Procedure
- GM9115P – Conducted Transient Emissions Component Test Procedure
- FMVSS-124
- FMVSS-302

Electrical Connectors and Wiring

APU Connector Details (ETC sensor, motor) – See Dwg 133420

Revision History

Rev	Date	ECN#	Checked	Approved	Changes/Comments
A	1-17-08	41818	JMO	JDH	Initial Release

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