



Williams Controls

WCS-133420

Williams Customer Specification

Original Release: 01/17/08
Original Project: 966

FEATURES

- 3" Horizontal Pedal Adjustment
- 12 VDC Adjuster Motor
- FMVSS 124 and 302 compliant
- -40°C to +85°C Operation
- 20° ± 10° 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.

CURTISS - WRIGHT	PROCEDURE NAME:	DEPT:	030				
	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

APS Circuit	
Supply Voltage (VCC1, VCC2)	-5.5 VDC to +5.5 VDC
Output Current (APS1, APS2 output)	10mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Short Circuit Duration – to GND or VCC	Indefinite
Static Load Limit	250lb normal to treadle at 4.75" from pivot
Side load limit	75lb lateral to treadle at 6" from pivot
Upward Load Limit	75lb 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	12.6V ± 0.5V	1	1.8	5	A
Stall Current	12.0V		10		A
Overload Protection	Stall	Integral PTC Device			
Radiated Emissions		Meets GM 9114P			
Conducted Transient Emissions		Meets Gm 9115P			

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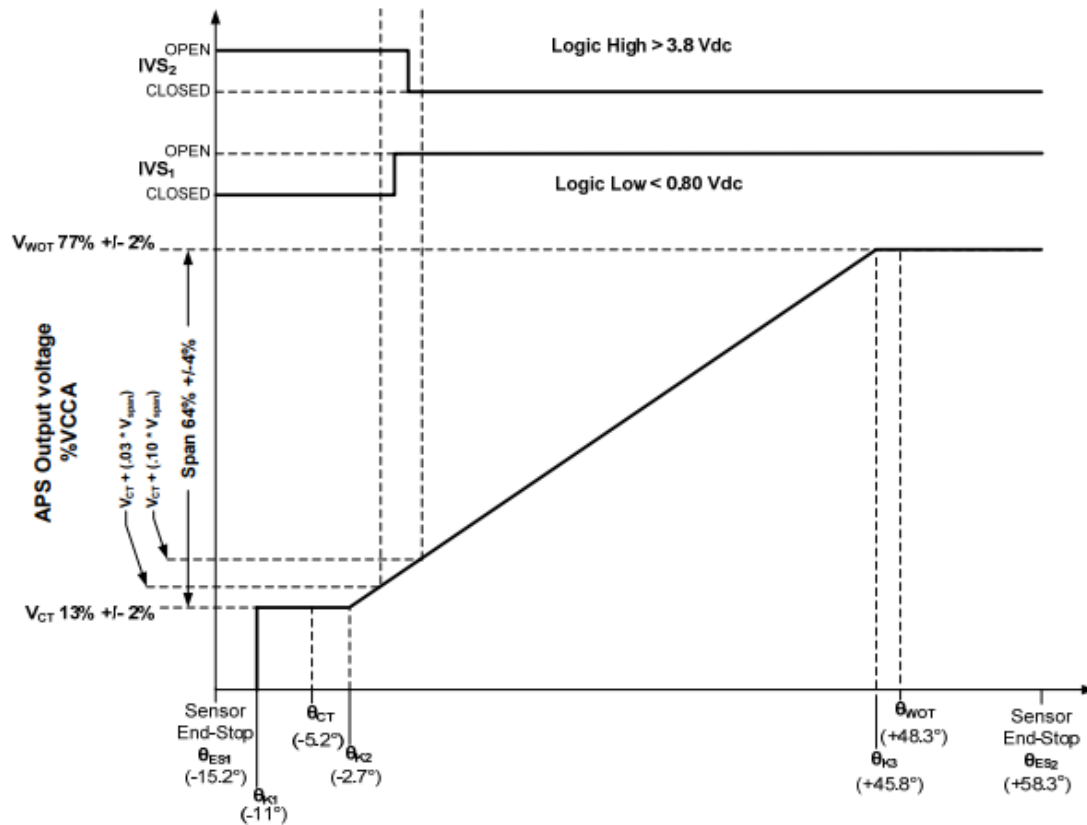
ENVIRONMENTAL VALIDATION

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	

MECHANICAL VALIDATION

Full Stroke pedal Actuation Cycles	3x10 ⁶ at 30lb
Full Stroke Adjuster cycles	15,000

TYPICAL OUTPUT CHARACTERISTICS

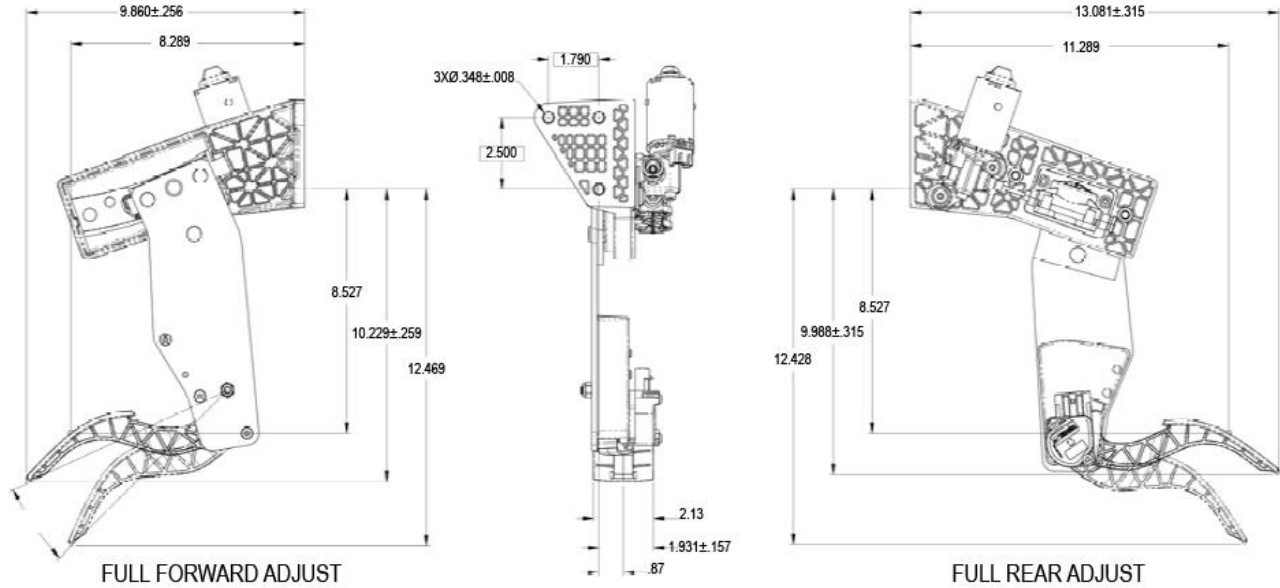


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MECHANICAL DIMENSIONS AND CHARACTERISTICS (FOR REFERENCE ONLY)

Measurements in mm



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

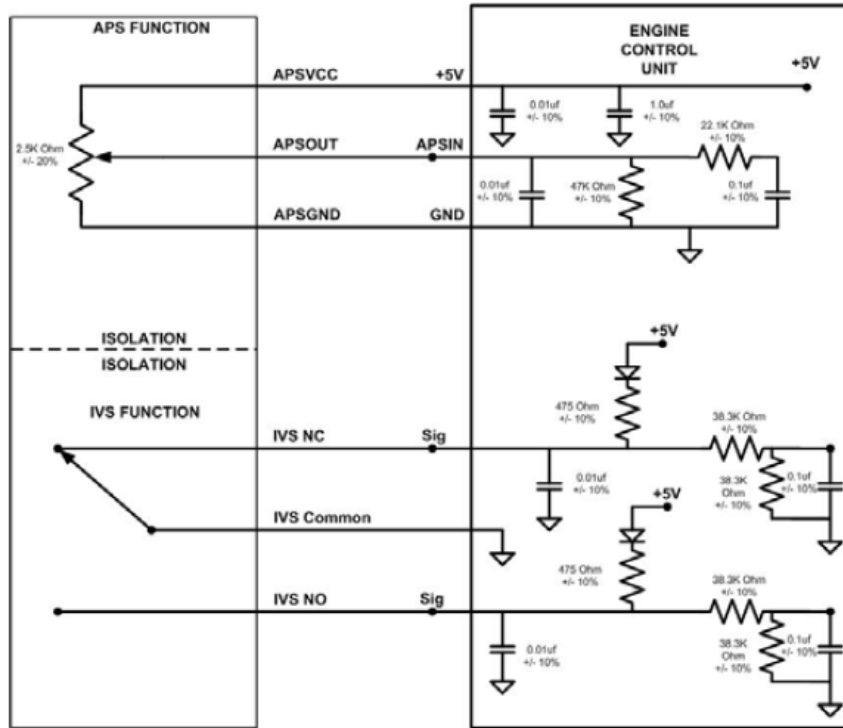
ELECTRICAL CONNECTORS AND WIRING

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

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APPLICATIONS INFORMATION:



REFERENCED DOCUMENTS

- Williams Controls DWG #133420 Throttle Control APU
- Williams Controls Specification #WCS-133420
- 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-125

REVISION HISTORY

Rev	Date	ECN#	Checked	Approved	Changes/Comments
A	01/17/08	41818	JMO	JDH	Initial Release

USA
 Portland
 Oregon
 T: +1.503.684.8600
 cwig.us@curtisswright.com
 www.cw-industrialgroup.com

Europe
 Garching
 Germany
 T: +44.89.5404.100.0
 cwig.de@curtisswright.com
 www.cw-industrialgroup.com

Asia
 Shanghai
 China
 T: +86.213.3310670
 cwig.cn@curtisswright.com
 www.cw-industrialgroup.com

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