Installation Guide

Fuller Automated Transmissions TRIG0910

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Powering Business Worldwide

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Automated Transmission Engine Configuration Settings

These engine configurations are for the following Fuller® Automated Transmissions.

- AutoShift / UltraShift Gen 2 and Gen 3

Caterpillar

AutoShift Medium-Duty / Heavy-Duty

Programmable Parameter Table	**Required Setting**
Engine Gear Parameters	(Note: Gear RPM Limits disabled in Drive.)
Transmission Style	Manual Option 1 (2006 and Earlier Engines)
	Manual (2007 and Later Engines)
Governor Type	Min/Max
Top Gear Ratio	0.780 for 6A, 0.740 for 10B, 0.730 for 10C, 0.730 for 18A
Top Gear Minus one ratio	1.00 for 6A, 1.00 for 10B & 10C, 0.860 for 18A
Top Gear Minus two ratio	1.59 for 6A, 1.36 for 10B, 1.38 for 10C, 1.00 for 18A
Data Link Parameters	
Powertrain Data Link	J1939
Input Selections (2007 and Later Engines)	**Recommended**
Transmission Neutral Switch	J1939

UltraShift ASW

Programmable Parameter Table	**Required Setting**
Engine Gear Parameters	(Note: Gear RPM Limits disabled in Drive.)
Transmission Style	Automatic Option 1 (2006 and Earlier Engines)
	Automatic (2007 and Later Engines)
Governor Type	Min/Max
Top Gear Ratio	0.780 for 6A

Programmable Parameter Table	Required Setting
Top Gear Minus one ratio	1.00 for 6A
Top Gear Minus two ratio	1.59 for 6A
Data Link Parameters	
Powertrain Data Link	J1939
Input Selections (2007 and Later Engines)	
Transmission Neutral Switch	J1939

UltraShift Medium-Duty DM

Programmable Parameter Table	Required Setting
Engine Gear Parameters	(Note: Gear RPM Limits disabled in Drive.)
Transmission Style	Automatic Option 1 (2006 and Earlier Engines)
	Automatic (2007 and Later Engines)
Governor Type	Min/Max
Top Gear Ratio	0.780 for 6A HV OD, 1.00 for 5A HV DIR
Top Gear Minus one ratio	1.00 for 6A HV OD, 1.59 for 5A HV DIR
Top Gear Minus two ratio	1.59 for 6A HV OD, 2.52 for 5A HV DIR
Low Idle Engine RPM	700 rpm max
Data Link Parameters	
Powertrain Data Link	J1939
Input Selections (2007 and Later Engines)	
Transmission Neutral Switch	J1939

UltraShift Heavy-Duty DM

Programmable Parameter Table	Required Setting
Engine Gear Parameters	(Note: Gear RPM Limits disabled in Drive.)
Transmission Style	Automatic Option 1 (2006 and Earlier Engines)
	Automatic (2007 and Later Engines)
Governor Type	Min/Max
Top Gear Ratio	0.740 for 10B LST OD, 1.00 for 10B LST DIR, 0.730 for 13 LHP & LEP
Top Gear Minus one ratio	1.00 for 10B LST OD, 1.34 for 10B LST DIR, 0.860 for 13 LHP & LEP
Top Gear Minus two ratio	1.36 for 10B LST OD, 1.83 for 10B LST DIR, 1.00 for 13 LHP & LEP
Low Idle Engine RPM	625 rpm max (Until further notification)
Data Link Parameters	
Powertrain Data Link	J1939
Input Selections (2007 and Later Engines)	
Transmission Neutral Switch	J1939

UltraShift *PLUS* Heavy-Duty

Programmable Parameter Table	Required Setting
Engine Gear Parameters	(Note: Gear RPM Limits disabled in Drive.)
Transmission Style	Automatic (2007 and Later Engines)
Governor Type	Min/Max
Top Gear Ratio	0.74 for 8LL VCS 0.73 for 9ALL VMS 1.00 for 10B LAS DD 0.73 for 10C LAS OD 0.73 for 13B MHP 0.73 for 18B MXP 0.73 for 18B VXP

Programmable Parameter Table	Required Setting
Top Gear Minus one ratio	1.00 for 8LL VCS 1.00 for 9ALL VMS 1.35 for 10B LAS DD 1.00 for 10C LAS OD 0.86 for 13B MHP 0.86 for 18B MXP 0.86 for 18B VXP
Top Gear Minus two ratio	1.36 for 8LL VCS 1.38 for 9ALL VMS 1.83 for 10B LAS DD 1.38 for 10C LAS OD 1.00 for 13B MHP 1.00 for 18B MXP 1.00 for 18B VXP
Data Link Parameters	
Powertrain Data Link	J1939

Cummins

AutoShift Medium-Duty / Heavy-Duty

Features and Parameters	Required Setting
Accelerator (or Governor) Type	
Accelerator (or Governor) Type	Automotive
Adjustable Low Idle Speed	
Low Idle Speed	
Low Idle Speed Adjustment Switch	
Transmission Setup	
Clutch Pedal Position Switch	Installed
Transmission Type	Fully Automated with Clutch Pedal (or Fully Automated if clutch pedal distinction not present)
Gear down transmission ratio	1.00 for 6A, 1.00 for 10B & 10C, 0.860 for 18A
Top Gear Transmission ratio	0.780 for 6A, 0.740 for 10B, 0.730 for 10C, 0.730 for 18A

Features and Parameters	Required Setting
Switched Maximum Engine Operating Speed	
Maximum Switched Engine Speed	Highest allowable rpm (min of high idle) Or Disable
PTO/Remote PTO	**Recommended**
Service Brake Override in PTO	Enable
Clutch Override in PTO	Enable

UltraShift ASW

Features and Parameters	Required Setting
Accelerator (or Governor) Type	
Accelerator (or Governor) Type	Automotive
Transmission Setup	
Clutch Pedal Position Switch	Not Installed
Transmission Type	Fully Automated without Clutch Pedal
Gear down transmission ratio	1.00 for 6A
Top Gear Transmission ratio	0.78 for 6A
Switched Maximum Engine Operating Speed	
Maximum Switched Engine Speed	Highest allowable rpm (min of high idle) Or Disable

UltraShift Medium-Duty DM

Features and Parameters	Required Setting
Accelerator (or Governor) Type	
Accelerator (or Governor) Type	Automotive
Remote Accelerator	Disable

Features and Parameters	Required Setting
Adjustable Low Idle Speed	
Low Idle Speed	700 rpm max
Low Idle Speed Adjustment Switch	Disable
Transmission Setup	
Clutch Pedal Position Switch	Not Installed
Transmission Type	Fully Automated without Clutch Pedal
Gear down transmission ratio	1.00 for 6A HV OD, 1.59 for 5A HV DIR
Top Gear Transmission ratio	0.780 for 6A HV OD, 1.00 for 5A HV DIR
Switched Maximum Engine Operating Speed	
Maximum Switched Engine Speed	Highest allowable rpm (min of high idle) Or Disable
If PTO/Remote PTO is Enabled	**Required**
PTO/Remote PTO	
Service Brake Override in PTO	Enable
	Recommended
PTO/Remote PTO	
PTO Resume Switch Speed	1000 rpm minimum
Clutch Override in PTO	Disable

UltraShift Heavy-Duty DM

Features and Parameters	Required Setting
Accelerator (or Governor) Type	
Accelerator (or Governor) Type	Automotive
Adjustable Low Idle Speed	

Features and Parameters	Required Setting
Low Idle Speed	625 rpm max (2009 and earlier engines) 700 rpm max (2010 and later engines)
Low Idle Speed Adjustment Switch	Disable
Transmission Setup	
Clutch Pedal Position Switch	Not Installed
Transmission Type	Fully Automated without Clutch Pedal
Gear down transmission ratio	1.00 for 10B LST OD, 1.34 for 10B LST DIR, 0.860 for 13 LHP & LEP
Top Gear Transmission ratio	0.740 for 10B LST OD, 1.00 for 10B LST DIR, 0.730 for 13 LHP & LEP
Switched Maximum Engine Operating Speed	
Maximum Switched Engine Speed	Highest allowable rpm (min of high idle) Or Disable
If PTO/Remote PTO is Enabled	**Required**
PTO/Remote PTO	
Service Brake Override in PTO	Enable
	Recommended
PTO/Remote PTO	
PTO Resume Switch Speed	1000 rpm minimum
Clutch Override in PTO	Disable

Medium-Duty Hybrid

Features and Parameters	Required Setting
Accelerator Options	
Remote Accelerator Pedal or Lever	Disable, unless Approved by Eaton Application Engineering
Governor Type	
Governor Type	Automotive

Features and Parameters	Required Setting
Transmission Setup	Enable
Transmission Type	Fully Automated without Clutch Pedal
Gear Down Transmission Ratio	1.00 for 6A OD
Top Gear Transmission ratio	0.780 for 6A OD
Clutch Pedal Position Switch	Not Installed
Switched Maximum Engine Operating Speed	
Maximum Switched Engine Speed	Disable
SAE J1939 Multiplexing	
Auxiliary Shutdown Switch	Enable
-Source Address	239
Clutch Pedal Position Switch	Disable
If PTO is Enabled	
Clutch Override	Disable
Remote PTO	Disable
Service Brake Override	Enable

UltraShift *PLUS* Heavy-Duty

Features and Parameters	Required Setting
Governor Type	
Governor Type	Automotive
Powertrain Protection	Disable
Transmission Setup	
Clutch Pedal Position Switch	Not Installed

Features and Parameters	Required Setting
Transmission Type	Fully Automated without Clutch Pedal
Gear Down Transmission Ratio	1.00 for 8LL VCS 1.00 for 9ALL VMS 1.35 for 10B LAS DD 1.00 for 10C LAS OD 0.86 for 13B MHP 0.86 for 18B MXP 0.86 for 18B VXP
Top Gear Transmission Ratio	0.74 for 8LL VCS 0.73 for 9ALL VMS 1.00 for 10B LAS DD 0.73 for 10C LAS OD 0.73 for 13B MHP 0.73 for 18B MXP 0.73 for 18B VXP
Switched Maximum Engine Operating Speed	**Disable**
If PTO/Remote PTO is Enabled	
Service Brake Override	Enable
Clutch Override	Disable
Vehicle Speed Anti-Tampering (If Enabled) 8LL VCS and 9ALL VMS ONLY	
Tampering Sensitivity Level	Low

Hino

Ultrashift Medium Duty DM

Please work with an authorized Hino dealer to verify engine configuration.

International (EPA 2007 Emission Engine HT-570)

AutoShift Heavy-Duty

Programmable Parameter Table	Required Setting
Engine Parameters	
Transmission Type	Manual
Engine Family Rating Code	6122-330/1150

International (EPA 2007 Emission Engine MaxxForce DT (DT-466))

UltraShift ASW

Programmable Parameter Table	Required Setting
Engine Parameters	
Transmission Type	Allison-MD
Engine Family Rating Code	2141-255/660
	2131-245/620
	2132-245/660

UltraShift Medium-Duty DM

Programmable Parameter Table	Required Setting
Engine Gear Parameters	
Transmission Type	Allison-MD
Engine Family Rating Code	1121-210/520
	1141-225/560
	1122-225/620
	2141-255/660

Programmable Parameter Table	Required Setting
	2131-245/620
	2132-245/660

International (EPA 2010 Emission Engine MaxxForce DT (DT-466))

UltraShift Medium-Duty DM

Programmable Parameter Table	Required Setting
Engine Gear Parameters	
Transmission Type	Allison-MD
Engine Family Rating Code	1121-210/520
	1141-225/560
	1122-225/620
	2141-255/660
	2131-245/620
	2132-245/660

Hybrid (HEV)

Programmable Parameter Table	Required Setting
Engine Parameters	
Transmission Type	Eaton Hybrid (Allison-MD in Service Tool)
EFRC: ENgine Family Rating Code	1121-210/560
	1131-225/560
	1141-225/620
	1151-230/620
	2121-245/620
	2131-255/660
PTO: Remote Pedal	Off, Unless Approved by Eaton Application Engineering

International (EPA 2007 Emission Engines MaxxForce 11 and 13)

UltraShift Heavy-Duty DM

Features and Parameters	Required Setting
Engine Family / Transmission	
Transmission Type	8: Eaton Ultrashift
Low Idle Engine Speed	700 rpm maximum
Low Idle Speed Adjustable Maximum	700 rpm maximum
Vehicle Configuration	
Speed Governor Enable	0: Torque Governor Enabled
Engine Fan Control	
Engine Fan Control Mode	3: Variable Engine Fan Speed Control
Enable the fan on with engine braking feature	1: Enable (Navistar Requirement)

UltraShift *PLUS* Heavy-Duty

Features and Parameters	Required Setting
Engine Family / Transmission	
Transmission Type	8: Eaton Ultrashift
Vehicle Configuration	
Speed Governor Enable	0: Torque Governor Enabled
Engine Fan Control	
Engine Fan Control Mode	3: Variable Engine Fan Speed Control
Enable the fan on with engine braking feature	1: Enable (Navistar Requirement)

International (EPA 2010 Emission Engines MaxxForce 11 and 13)

UltraShift Heavy-Duty DM

Features and Parameters	Required Setting
Engine Family / Transmission	
Transmission Type	8: Eaton Ultrashift
Low Idle Engine Speed	700 rpm maximum
Low Idle Speed Adjustable Maximum	700 rpm maximum
Engine Fan Control	
Engine Fan Control Mode	1.0: On/Off Control OR
	2.0: Variable Engine Fan Speed Control

UltraShift *PLUS* Heavy-Duty

Features and Parameters	Required Setting
Engine Family / Transmission	
Transmission Type	8: Eaton Ultrashift
Vehicle Configuration	
High Idle Engine Speed	2100-2200 rpm
Engine Fan Control	
Engine Fan Control Mode	1.0: On/Off Control OR
	2.0: Variable Engine Fan Speed Control

UltraShift *PLUS* Heavy-Duty

Engine Gear Parameters

ID	Gear Number Calculation Gear #	Abbreviation	Value		ID	Gear Number Calculation Ratio #	Abbreviation	10C LAS	10B LAS	MXP VXP	VMS	VCS	MHP	10-Sp DM3	10B LST
82201	1	GNCG1	18	Gear Number Values on Left Correspond to Ratio Values on Right	82431	1	GNCR1	NA	NA	0.73	NA	NA	NA	NA	NA
82211	2	GNCG2	17		82441	2	GNCR2	NA	NA	0.86	NA	NA	NA	NA	NA
82221	3	GNCG3	16		82451	3	GNCR3	NA	NA	1.00	NA	NA	NA	NA	NA
82231	4	GNCG4	15		82461	4	GNCR4	NA	NA	1.17	NA	NA	NA	NA	NA
82241	5	GNCG5	14		82471	5	GNCR5	NA	NA	1.38	NA	NA	NA	NA	NA
82251	6	GNCG6	13		82481	6	GNCR6	NA	NA	1.62	NA	NA	0.73	NA	NA
82261	7	GNCG7	12		82491	7	GNCR7	NA	NA	1.94	NA	NA	0.86	NA	NA
82271	8	GNCG8	11		82501	8	GNCR8	NA	NA	2.28	0.73	NA	1.00	NA	NA
82281	9	GNCG9	10		82511	9	GNCR9	0.73	1.00	2.73	1.00	0.74	1.17	0.74	1.00
82291	10	GNCG10	9		82521	10	GNCR10	1.00	1.34	3.20	1.38	1.00	1.38	1.00	1.34
82301	11	GNCG11	8		82531	11	GNCR11	1.38	1.83	3.74	1.95	1.36	1.62	1.36	1.83
82311	12	GNCG12	7		82541	12	GNCR12	1.89	2.46	4.38	2.77	1.83	1.95	1.83	2.46
82321	13	GNCG13	6		82551	13	GNCR13	2.61	3.30	5.16	3.79	2.53	2.29	2.46	3.31
82331	14	GNCG14	5		82561	14	GNCR14	3.58	4.67	6.05	5.23	3.40	3.20	3.32	4.46
82341	15	GNCG15	4		82571	15	GNCR15	4.90	6.28	7.29	7.41	4.63	4.38	4.46	6.00
82351	16	GNCG16	3		82581	16	GNCR16	6.76	8.55	8.51	11.85	6.24	6.05	6.07	8.17
82361	17	GNCG17	2		82591	17	GNCR17	9.25	11.52	12.29	16.30	9.42	8.51	8.18	11.00
82371	18	GNCG18	1		82601	18	GNCR18	12.80	15.42	14.40	26.08	14.56	12.29	10.96	14.78
82381	19	GNCG19	-2		82611	19	GNCR19	NA	NA	NA	NA	NA	NA	NA	NA
82391	20	GNCG20	-2		82621	20	GNCR20	NA	NA	NA	NA	NA	NA	NA	NA
82401	21	GNCG21	-2		82631	21	GNCR21	NA	NA	NA	NA	NA	NA	NA	NA
82411	22	GNCG22	-2		82641	22	GNCR22	NA	NA	NA	NA	NA	NA	NA	NA
82421	23	GNCG23	-2		82651	23	GNCR23	NA	NA	NA	NA	NA	NA	NA	NA

Note: For engine parameters not listed above, please refer to the engine manufactures programming guide.

Note: In order for Progressive Shift and Gear Down protection to work correctly, the gear number and ratio information must be set correctly. Progressive Shift and Gear Down protection settings can effect transmission operation and should be reviewed when diagnosing a shift complaint.

International MaxxForce

Hybrid (HEV)

Programmable Parameter Table	Required Setting
Engine Parameters	
Transmission Type	Eaton Hybrid (Allison-MD in Service Tool)
EFRC: ENgine Family Rating Code	1121-210/560
	1131-225/560
	1141-225/620
	1151-230/620
	2121-245/620
	2131-255/660
PTO: Remote Pedal	Off, Unless Approved by Eaton Application Engineering

Detroit Diesel (pre 2007)

AutoShift Heavy-Duty

Calibration Parameters	Required Setting
Transmission Type	16 – AutoShift J1939 Transmission

UltraShift Heavy-Duty DM

Calibration Parameters	Required Setting
Transmission Type	14 – Automatic w/magnetic speed sensor 33 – Eaton Fuller Automatic w/J1939 Speed (Setting the listed transmission types above sets a maximum warmup speed of 700 rpm.)
Enable_VSG_switch	OFF or limit below
VSG_max_rpm	650 rpm
Analog D1 510 (DDEC IV)	NONE (No analog PTO input allowed)

Detroit Diesel (EPA 2010 Emission Engines DD13, DD15, DD16)

AutoShift - Heavy-Duty

Parameter Group	Parameters	Required Setting
MCM2	Trans Limp Home Mode	1- Automatic
2	Transmission Type	DIRECT ENGINE START 2 - Eaton AutoShift Direct Start MCM ENGINE START 5 - Eaton AutoShift MCM Start
3	Max Engine Speed	3000 rpm (to allow for engine protection upshift)
5	LIM0, LIM1, LIM2	1800 rpm or higher
10	Eng Brk Driveline Clsd Min Spd	800 rpm
10	Min Eng Spd for Engine Brakes	1100 rpm

Parameter Group	Parameters	Required Setting
13	Clutch Switch Config	1 - Clutch Switch
13	4 08 DI Selection	1 - Clutch Switch
13	Trans Neutral Input Config	1 - Info from J1939

UltraShift - Heavy-Duty DM

Parameter Group	Parameters	Required Setting
MCM2	Trans Limp Home Mode	1= Automatic
2	Transmission Type	DIRECT ENGINE START 2 = Eaton UltraShift Direct Start MCM ENGINE START 5 = Eaton UltraShift MCM Start
3	Adjusted Idle Configuration	0 = Disabled 3 = Enabled if Neutral and Park Brake
3	Max Adjusted Idle Speed	≤700 rpm
3	Max Engine Speed	3000 rpm (to allow for engine protection upshift)
3	Min Engine Speed	≤700 rpm
5	LIM0, LIM1, LIM2	1800 rpm or higher
6	Fast Idle Spd Air Cond Input	≤700 rpm
7	Configuration PTO Speed Control	3 = Enable if Neutral and park brake 0 = Disable
7	Max Road Speed in PTO Mode	10.0 km/h or 6 mi/h (default)
7	PTO Droptout Serv Brk Prk Brk	If PTO is enabled, 2 = PTO Drops out on Service Brake Activation
8	Anti Tamper (Vehicle Speed Tamper)	0 = Disabled
8	Vehicle Speed Sensor	3 = J1939 (ETC1)
10	Eng Brk Driveline Clsd Min Spd	800 rpm
10	Min Eng Spd for Engine Brakes	1100 rpm
13	Clutch Switch Config	0 = Disabled (No Clutch Switch)
13	4 08 DI Selection	0 = Disabled
13	Trans Neutral Input Config	1 = Info from J1939
15	Enabled Cruise Auto Resume	3 = Resume AMT Style

UltraShift *PLUS* Heavy-Duty

Parameter Group	Parameters	Required Setting
2	Transmission Type	MCM ENGINE START 5 = Eaton UltraShift MCM2 Start
3	Max Engine Speed	≥ 2000 rpm
5	Limiter0 Max Eng Speed Enabled	≥ 2000 rpm
5	Limiter1 Max Eng Speed Enabled	≥ 2000 rpm
7	Configuration PTO Speed Control	3 = Enable if Neutral and park brake 0 = Disable
8	Vehicle Speed Sensor	3 = J1939 (ETC1)
10	Eng Brk Driveline Clsd Min Spd	800 rpm
10	Min Eng Spd for Engine Brakes	1100 rpm
13	Clutch Switch Config	0 = Disabled (No Clutch Switch)
13	4 08 DI Selection	0 = Disabled
13	Trans Neutral Input Config	1 = Info from J1939 (Multiplexed)
15	Enabled Cruise Auto Resume	3 = Resume AMT Style
MCM2 4_1_EngineConfig	Trans Limp Home Mode	1 = Automatic

Detroit Diesel/Mercedes (EPA 2007 Emission Engines)

AutoShift - Heavy-Duty

Parameter Group	Parameters	Required Setting
MCM	Trans Limp Home Mode	1- Automatic
2	Transmission Type	DIRECT ENGINE START 2 - Eaton AutoShift Direct Start MCM ENGINE START 5 - Eaton AutoShift MCM Start
3	Max Engine Speed	3000 rpm (to allow for engine protection upshift)
5	LIM0, LIM1, LIM2	1800 rpm or higher
10	Eng Brk Stage 1 Off Delay Time	60 ms - Series 60DD15 Engine 240ms - MBE 900/4000
10	Eng Brk Stage 2 Off Delay Time	60 ms - Series 60/DD15 Engine 240 ms - MBE 900/4000

Parameter Group	Parameters	Required Setting
10	Eng Brk Stage 3 Off Delay Time	60 ms - Series 60/DD15 Engine 240 ms - MBE 900/4000
10	Stage 1 Eng Brk Off Delta Spd	250 rpm - Series 60 200rpm - DD15 100rpm - MBE 900/4000
10	Stage 2 Eng Brk Off Delta Spd	250 rpm - Series 60 200rpm - DD15 100rpm - MBE 900/4000
10	Stage 3 Eng Brk Off Delta Spd	250 rpm - Series 60 200rpm - DD15 100rpm - MBE 900/4000
10	Eng Brk Driveline Clsd Min Spd	800 rpm
10	Min Eng Spd for Engine Brakes	1100 rpm
10	Trans Mask Engine Brake	Series 60 - 81 : decompression valve and turbo brake or Jake Brake 3rd stage DD15 Engine - 64: decompression valve only or Jake Brake 1st Stage MBE 4000 - 0: no engine brake activation
10	Trans Factor Engine Brake	100
13	Clutch Switch Config	1 - Clutch Switch
13	4 08 DI Selection	1 - Clutch Switch
13	Trans Neutral Input Config	1 - Info from J1939
22	0 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
22	1 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
22	2 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
22	3 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
23	Acceleration Limiter Ramp Up Rate	160 rpm/sec (default) or higher (AI Guide states S60 should be 120 rpm/sec)
44	Mode Shift ECAN Status Enable	0 - Disable - Series 60/MBE 900/DD15 1 - Enable - MBE 4000

UltraShift - Heavy-Duty DM

Parameter Group	Parameters	Required Setting
MCM	Trans Limp Home Mode	1- Automatic
2	Transmission Type	DIRECT ENGINE START 2 - Eaton UltraShift Direct Start MCM ENGINE START 5 - Eaton UltraShift MCM Start
3	Adjusted Idle Configuration	0 - Disabled 3 - Enabled if Neutral and Park Brake
3	Max Adjusted Idle Speed	≤650 rpm
3	Max Engine Speed	3000 rpm (to allow for engine protection upshift)
3	Min Engine Speed	≤650 rpm
5	LIM0, LIM1, LIM2	1800 rpm or higher
6	Fast Idle Spd Air Cond Input	≤700 rpm
7	Configuration PTO Speed Control	3 - Enable if Neutral and park brake 0 - Disable
7	Max Road Speed in PTO Mode	10.0 km/h or 6 mi/h (default)
7	PTO Droptout Serv Brk Prk Brk	If PTO is enabled, 2 - PTO Drops out on Service Brake Activation
8	Anti Tamper (Vehicle Speed Tamper)	0 - Disabled
8	Vehicle Speed Sensor	3 - J1939 (ETC1)
10	Trans Mask Engine Brake	Series 60 - 81 : decompression valve and turbo brake or Jake Brake 3rd stage DD15 Engine - 64: decompression valve only or Jake Brake 1st Stage MBE 4000 - 0: no engine brake activation
10	Trans Factor Engine Brake	100
10	Eng Brk Stage 1 Off Delay Time	60 ms - Series 60DD15 Engine 240 ms - MBE 900/4000
10	Eng Brk Stage 2 Off Delay Time	60 ms - Series 60/DD15 Engine 240 ms - MBE 900/4000
10	Eng Brk Stage 3 Off Delay Time	60 ms - Series 60/DD15 Engine 240 ms - MBE 900/4000
10	Stage 1 Eng Brk Off Delta Spd	250 rpm - Series 60 200rpm - DD15 100rpm - MBE 900/4000

Parameter Group	Parameters	Required Setting
10	Stage 2 Eng Brk Off Delta Spd	250 rpm - Series 60 200rpm - DD15 100rpm - MBE 900/4000
10	Stage 3 Eng Brk Off Delta Spd	250 rpm - Series 60 200rpm - DD15 100rpm - MBE 900/4000
10	Eng Brk Driveline Clsd Min Spd	800 rpm
10	Min Eng Spd for Engine Brakes	1100 rpm
13	Clutch Switch Config	0 - Disabled (No Clutch Switch)
13	4 08 DI Selection	0 - Disabled
13	Trans Neutral Input Config	1 - Info from J1939
15	Enabled Cruise Auto Resume	1- Enable automatic resume function after clutch has been released once
22	0 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
22	1 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
22	2 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
22	3 Speed Gov TSC1 Condition	0 - Series 60/DD15/MBE 4000 16 - MBE 900
23	Acceleration Limiter Ramp Up Rate	160 rpm/sec (default) or higher (AI Guide states S60 should be 120 rpm/sec)
23	AL Conditions	1 - No AL During Shift
44	Mode Shift ECAN Status Enable	0 - Disable - Series 60/MBE 900/DD15 1 - Enable - MBE 4000

UltraShift *PLUS* Heavy-Duty

Parameter Group	Parameters	Required Setting
MCM	Trans Limp Home Mode	1- Automatic
2	Transmission Type	DIRECT ENGINE START 2 - Eaton UltraShift Direct Start MCM ENGINE START 5 - Eaton UltraShift MCM Start

Parameter Group	Parameters	Required Setting
3	Adjusted Idle Configuration	0 - Disabled 3 - Enabled if Neutral and Park Brake
3	Maximum Engine Speed	3000 rpm (to allow for engine protection upshift)
5	LIMO, LIM1, LIM2	1800 rpm or higher
7	Configuration PTO Speed Control	0 - Disable 3 - Enable if Neutral and Park Brake
8	Anti-Tamper (Vehicle Speed Tamper)	0 - Disabled
8	Vehicle Speed Sensor	3 - J1939 (ETC1)
13	Clutch Switch Config	0 - Disabled (No Clutch Switch)
13	4 08 DI Selection	0 - Disabled
13	Trans Neutral Input Config	1 - Info from J1939
15	Enable Cruise Auto Resume	1 - Enable automatic resume function after clutch has been released once
22	0 Speed Gov TSC1 Condition	0 - Series 60/DD15 Engine/MBE 4000 16 - MBE 900
22	1 Speed Gov TSC1 Condition	0 - Series 60/DD15 Engine/MBE 4000 16 - MBE 900
22	2 Speed Gov TSC1 Condition	0 - Series 60/DD15 Engine/MBE 4000 16 - MBE 900
22	3 Speed Gov TSC1 Condition	0 - Series 60/DD15 Engine/MBE 4000 16 - MBE 900
23	Acceleration Limiter Ramp Up Rate	160 rpm/sec (default) or higher (AI Guide states S60 should be 120 rpm/sec)
23	AL Conditions	1 - No AL During Shift
44	Mode Shift ECAN Status Enable	0 - Series 60/MBE 900/DD15 Engine 1 - MBE 4000

Mercedes (pre 2007)

AutoShift Medium-Duty

Calibration Parameters	Required Setting
1 02 01 Transmission Type	1 (Automated with clutch switch)
1 05 xx LIM0, LIM1, LIM2	1800 rpm or higher

Calibration Parameters	Required Setting
1 03 02 Maximum Engine Speed	3000 rpm (to allow for engine protection upshift)
1 10 20 Engine Brake Transmission Mask	16, if exhaust flap otherwise 64, decompression
1 13 07 Enable Transmission Neutral Input	0, J1939
Engine Brake Transmission Factor	Parameter 19 = 100
1 23 06, 07 Progressive Shift Limiters	No Limits (leave 3000 rpm default)
1 19 01 Enable Automatic Fan on Engine brk.	0, disable
1 23 10 Acceleration Limiter Ramp Rate	160 rpm/sec or higher

AutoShift Heavy-Duty

Calibration Parameters	Required Setting
1 02 01 Transmission Type	1 (Automated with clutch switch)
1 05 xx LIM0, LIM1, LIM2	1800 rpm or higher
1 03 02 Maximum Engine Speed	3000 rpm (to allow for engine protection upshift)
1 10 20 Engine Brake Transmission Mask	16, if exhaust flap otherwise 64, decompression
1 13 07 Enable Transmission Neutral Input	0, J1939
Engine Brake Transmission Factor	Parameter 19 = 100
1 23 06, 07 Progressive Shift Limiters	No Limits (leave 3000 rpm default)
1 19 01 Enable Automatic Fan on Engine brk.	0, disable
1 23 10 Acceleration Limiter Ramp Rate	160 rpm/sec or higher

UltraShift ASW

Calibration Parameters	Required Setting
PLD Group 0 01 02 Manual/Automatic Trans	0 MANUAL (NOT 1 Automatic; engine speed may go to 1300 rpm with CAN failure.)
1 02 01 Transmission Type	2 (Automatic Trans without clutch switch) Allison name may appear for this setting
1 03 01 Minimum Engine Speed	800-900 rpm
1 03 02 Maximum Engine Speed	3000 rpm (to allow for engine protection upshift)

Calibration Parameters	Required Setting
1 03 10 Max Adj. Idle Speed	900 rpm
1 05 xx LIM0, LIM1, LIM2	2200 rpm or higher
1 08 10 Anti Tamper (Vehicle Speed Tamper)	0, disabled
1 13 07 Enable Transmission Neutral Input	0, J1939
1 23 06, 07 Progressive Shift Limiters	No Limits (leave 3000 rpm default)
1 23 10 Acceleration Limiter Ramp Rate	160 rpm/sec or higher

UltraShift Medium-Duty DM

Calibration Parameters	Required Setting
PLD Group 0 01 02 Manual/Automatic Trans	0 MANUAL (NOT 1 Automatic; engine speed may go to 1300 rpm with CAN failure.)
1 02 01 Transmission Type	2 (Automatic Trans without clutch switch) Allison name may appear for this setting
1 03 02 Maximum Engine Speed	3000 rpm (to allow for engine protection upshift)
1 03 10 Max Adj. Idle Speed	650 rpm or lower
1 05 xx LIM0, LIM1, LIM2	1800 rpm or higher
1 06 01 Enable Fast Idle on AC	1, enable fast idle only in Neutral
1 07 01 Configuration PTO Speed Control	3, enable if neutral and park brake – or 2, neutral
1 07 08 PTO Max Vehicle Speed	2 mph
1 07 06 PTO Dropout on Service Brake	2, Dropout on service brake
1 08 10 Anti Tamper (Vehicle Speed Tamper)	0, disabled
1 10 20 Engine Brake Transmission Mask	16, if exhaust flap otherwise 64, decompression
Engine Brake Transmission Factor	100 (parameter 19)
1 13 07 Enable Transmission Neutral Input	0, J1939
1 19 01 Enable Automatic Fan on Engine brk.	0, disable
1 23 06, 07 Progressive Shift Limiters	No Limits (leave 3000 rpm default)
1 23 10 Acceleration Limiter Ramp Rate	160 rpm/sec or higher

UltraShift Heavy-Duty

Calibration Parameters	Required Setting
PLD Group 0 01 02 Manual/Automatic Trans	0 MANUAL (NOT 1 Automatic; engine speed may go to 1300 rpm with CAN failure.)
1 02 01 Transmission Type	2 (Automatic Trans without clutch switch) Allison name may appear for this setting
1 03 02 Maximum Engine Speed	3000 rpm (to allow for engine protection upshift)
1 03 10 Max Adj. Idle Speed	650 rpm or lower
1 05 xx LIM0, LIM1, LIM2	1800 rpm or higher
1 06 01 Enable Fast Idle on AC	1, enable fast idle only in Neutral
1 07 01 Configuration PTO Speed Control	3, enable if neutral and park brake – or 2, neutral
1 07 08 PTO Max Vehicle Speed	2 mph
1 07 06 PTO Dropout on Service Brake	2, Dropout on service brake
1 08 10 Anti Tamper (Vehicle Speed Tamper)	0, disabled
1 10 20 Engine Brake Transmission Mask	16, if exhaust flap otherwise 64, decompression
Engine Brake Transmission Factor	100 (parameter 19)
1 13 07 Enable Transmission Neutral Input	0, J1939
1 19 01 Enable Automatic Fan on Engine brk.	0, disable
1 23 06, 07 Progressive Shift Limiters	No Limits (leave 3000 rpm default)
1 23 10 Acceleration Limiter Ramp Rate	160 rpm/sec or higher

For engine parameters not listed above, please refer to the engine manufactures programming guide.

Other applicable documents:

1. • Maximum Engine Load in PTO
   • –Eaton FUL-169 & FUL-169U requirements
2. • Maximum PTO Speed
   • –Eaton FUL-169 & FUL-169U requirements

PACCAR MX 12.9L Engine Configuration Settings

Please work with an Authorized Kenworth or Peterbilt Dealer to verify engine configuration.

Any feature change may be specified during the vehicle order process. Changing transmission features require new engine software. Dealers will need to submit a SupportNet case to the PACCAR Engine Support Center to obtain updated software.

If there is a question, the dealer can call the PACCAR Engine Support Center to determine the proper vehicle configuration.

Volvo/Mack Engine Configuration Settings

Please work with an Authorized Volvo or Mack Dealer to verify engine configuration.

The dealer can refer to the COLA system that can associate the proper sub-data set for the transmission/engine combination. Using Professional Tech Tool (PTT) or VCADS service tool, the dealer can confirm that the vehicle is configured properly. If there is a question, the dealer can call Volvo's eService help desk to determine the original sub-data sets for proper vehicle configuration.

Volvo/Mack Body Builder Module Settings

Parameter ID: DXM (EngSpd Limit) must be set to 0 (OFF)

Please work with an Authorized Volvo or Mack Dealer to verify all other Body Builder Module Settings.

Change Control Log

Last Revised Date	Description of Clarifications and Updates
Oct 2011	Added High Idle Engine Speed to the UltraShift PLUS Heavy-Duty section, along with the Engine Gear Parameters Table Added UltraShift Plus Heavy-Duty Parameters Table to Detroit Diesel (EPA 2010 Emission Engines DD13, DD15, DD16 Section Moved the Detroit Diesel (EPA 2010 Emission Engines DD13, DD15, DD16) AutoShift - Heavy-Duty Table to be before the Detroit Diesel (EPA 2010 Emission Engines DD13, DD15, DD16) UltraShift - Heavy-Duty DM Table Rearranged the engine Configuration types for usability
Dec 2010	Added sections for 2010 Maxxforce DT engine, Hino, and Maxxforce 11 & 13 for 2010
Sep 2010	Updated Engine Configuration Settings for Volvo and Mack
Dec 2009	Change ECA to UltraShift PLUS, minor changes to UltraShift PLUS tables, add 2010 Detroit Diesel / Mercedes engine information, add International EPA 2007 engine information
Feb 2009	Add Heavy-Duty ECA tables for Cummins, Caterpillar, and Detroit Diesel / Mercedes
July 2008	Updated International/Maxxforce with Hybrid engine configuration settings, Added Cummins with Hybrid engine configuration settings, Added DDEC/MBE engine configuration settings for 2007 and later
May 2008	Changed title from Installation Guide to Engine Configuration
Jun 2007	Updated Caterpillar and Cummins engine configuration settings pages 1, 3, 4, 5, 7, and 8
Jan 2007	Update Engine Configuration Settings, Add new covers, Add Change Control Log

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