



# ***Service Manual Supplement***

## ***Telematics***

Part No. 1274265GT  
Rev A1  
November 2016

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# Introduction

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## Important

The purpose of this document is to provide device connections and J1939/CAN message format for OEM Telematics providers.

Read, understand and obey the safety rules and operating instructions.

This manual provides detailed information for the machine owner and Telematics provider.

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## Compliance

### Wireless Certifications

- Telematic device(s) should comply with specific wireless carrier certifications where applicable and comply with the following:
  - N. America – PTCRB, FCC/IC
  - Europe – CE, RED 2014/53/EU
- Owners must verify the RF safety compliance in accordance with the Telematics device certifications.

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## Technical Publications

Genie has endeavored to deliver the highest degree of accuracy possible. However, continuous improvement of our products is a Genie policy. Therefore, product specifications are subject to change without notice.

Readers are encouraged to notify Genie of errors and send in suggestions for improvement. All communications will be carefully considered for future printings of this and all other manuals.

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1274265GT Rev A1, November 2016

First Edition, First Printing

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# Safety Rules

## General Safety



This machine is equipped with a connection for a telematics device. If a telematics device has been installed, additional information may need to be communicated to those that operate or service this machine and possibly the general public. Communications that need to be considered include:

- A hazard decal warning of the specific hazards related to the radio frequency exposure and the required steps to take so as to avoid them. This could apply to the operator, service personnel or even the general public.
- Additional operator and service training regarding the potential hazard.

If a telematics device has been installed, before placing the machine into service, it is the owners' responsibility to clearly understand the installed telematics device as it relates to its performance and market compliance and to ensure that the necessary steps have been taken to inform and train operators, service personnel and the general public (when applicable) regarding the potential hazards related to radio frequency exposure and how to avoid them.

# Telematics Software Specifications

## Definitions

ACK - Acknowledge

CAN - Controller Area Network  
(type of data bus used for communications)

Data Bus - Computer subsystem that allows for the transferring of data from one component to another on a networked system.

DC - Direct Current  
(DC and Bi-Energy models)

DTC - Diagnostic Trouble Codes

GCON - Ground Controls

GTM - Genie Telematics Message

GTS - Genie Telematics System

IC - Internal Combustion  
(diesel and gas/LPG models)

I/O - System Inputs and Outputs

NC - Not Connected

PCON - Platform Controls

PGN - Parameter Group Number

RTC - Real Time Clock

TRC - Telematics Ready Connector

UTS - Universal tilt sensor

## Important

### Telematics Ready Connector Data Bus Wiring:

A telematics device can be connected to the machine's databus via Pins 7 and Pins 8 of the TRC where applicable.

### Genie Telematics Message Scope:

The GTM shall comply with the CAN 2.0/J1939 standard across all control system architectures and machines. The following sections provide the GTM message format to be followed for transmitting and receiving the GTM on the data bus.

### Genie Telematics Message Format:

The GTM utilizes PGN 61184, a proprietary-A PGN. The GTM source address shall be defined by the machine controller.

Genie utilizes different control systems between equipment models. The control systems are defined by the *Message Identifier* found at Byte start position 1 of the data frame.

The GTM is broadcast upon request from the telematics device. A control system's GTM may contain several 8 byte messages that shall be transmitted sequentially upon receipt of a request message from the telematics device.

The telematics device's request message shall use the PGN, source address and message identifier defined in the *GTM Command/Request Section*.

# Telematics Software Specifications

## Genie Telematics Message Transfer

The GTM message data transfer shall be initiated by a frame request sent from the telematics device using PGN 61184 and the Message Start Byte 1 set to Command/Request value 0xFF.

The Genie machine shall respond by broadcasting the GTM primary, secondary and acknowledgment sections sequentially using the same PGN and Message Index indicating the machine platform controller as outlined in the GTM Format.

The Command/Request message contains byte fields to provide the telematics device's real-time-clock derived time stamp and to command remote engine start enable/disable commands to the machine.

## GTM Command / Request

<b>PGN:</b>	61184	
<b>Source Address:</b>	0x06	
<b>Destination Address:</b>	0xFF	
<b>Priority:</b>	0x06	
<b>Transmit Interval:</b>	No more than twice per minute.	
<b>START POSITION</b>	<b>LENGTH</b>	<b>PARAMETER</b>
1	1 byte	0xFF – <b>GTM Request</b> from Telematics device
2	4 bytes	<b>Time Stamp.</b> 32 bit Unix time stamp, Little-endian (Telematics RTC provided time stamp. 0xFFFFh = Not Available)
6.0	2 bits	<b>DC Controller Disable.</b> 00b=Enable, 01b=Disable, 10=Error, 11=Not Available (Enable = drive and lift functions active. Disable = drive and lift functions prevented)
6.2	2 bits	<b>IC Disable Engine Start.</b> 00b=Enable, 01b=Disable, 10=Error, 11=Not Available (Enable = engine can start. Disable = engine start prevented)
6.4	2 bits	<b>Drive Speed Cripple.</b> 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
6.6	2 bits	<b>Lift Speed Cripple.</b> 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
7	1 byte	<b>Reserved.</b>
8	1 byte	<b>Reserved.</b>

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# Telematics Software Specifications

## Remote Disable Configuration

The GTM Command/Request message has bits 6.0 – 6.6 dedicated to remotely disabling the machine. The disable has two configurations that allow for either shutting the machine down or limiting the machines operational speed.

The machine shall store the disable state in memory and not be restored to normal operation until a Command/Request enable message is received with the associated disable bits set to 0x00.

Note: A factory reset of Genie controllers will delete any stored disable states.

## Remote DC Disable and IC Engine Disable Re-Start

If the machine controller has DC Controller Disable or IC Disable Engine Start bits set to 0x01, the machine controller shall perform a software shutdown.

- On IC models the engine is prevented from restarting after it is shutdown. Auxiliary power functions to the boom remain normal and active.
- On DC Boom models the primary drive and lift functions are disabled. Auxiliary power functions to the boom remain normal and active.
- On Scissor models the primary drive and lift functions are disabled. Platform down function remains normal and active.
- The disable states shall be stored in controller memory so that if red Emergency Stop Button is cycled the disable conditions are still in effect.

## Remote Speed Cripple

The default Drive Speed and Lift Speed settings in the Command/Request Message shall be 00b.

If the machine controller has Drive Speed Cripple or Lift Speed Cripple bits set to 0x01 AND the DC Controller Disable or IC Disable Engine Start bits set to 0x00, the machine controller shall limit the drive and/or lift speed to Low Speed Mode during all operations.

The cripple speed states shall be stored in controller memory so that if the red Emergency Stop Button is cycled the disable conditions are still in effect.

## Telematics Software Specifications

### Remote Disable Truth Table

This truth table outlines the bit states a Telematics Device should set in the Command/Request Message to set machine disable states. Refer to *GTM Command / Request*.

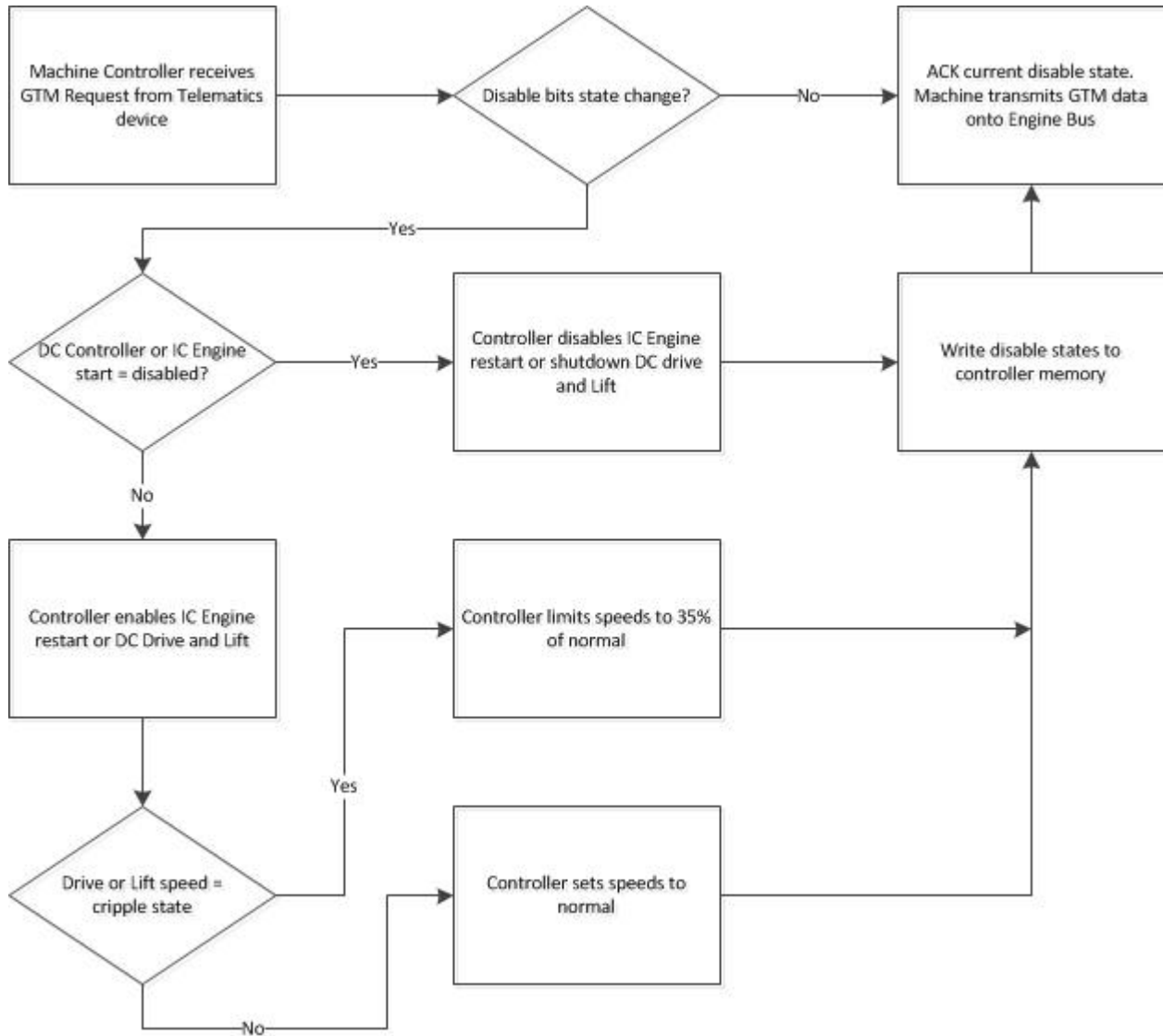
	Bits 6.0 DC Controller Disable	Bits 6.2 IC Disable Engine	Bits 6.4 Drive Cripple	Bits 6.6 Lift Cripple
<b>Shutdown the IC machine completely, only auxiliary power?</b>	Ignore	01b	00b (ignored by controller)	00b (ignored by controller)
<b>Shutdown the DC machine completely, only auxiliary power?</b>	01b	Ignore	00b (ignored by controller)	00b (ignored by controller)
<b>Do you want to limit Drive speed?</b>	00b	00b	01b	00b
<b>Do you want to limit lift speed?</b>	00b	00b	00b	01b
<b>Limit Drive and lift speed?</b>	00b	00b	01b	01b
<b>Normal operation?</b>	00b	00b	00b	00b



# Telematics Software Specifications

## Remote Disable Flow Chart

This flow chart shows how the machine controller handles the disable request received from the Telematics device.



# Telematics Software Specifications

## Remote Disable Fault Display

If the remote disable is activated over data bus the machines shall apply a fault notification defined as *Disabled By Owner*. The following fault codes shall be applied according to the noted machine controller:

<b>SmartLink</b>	C077(h). <i>Disabled By Owner</i> shall be displayed on the GCON LCD
<b>Plus 1</b>	83-21 (Decimal)
<b>ALC-1000</b>	<i>Disabled By Owner</i> shall be displayed on the LCD with fault type USER FAULT 4

## OEM Telematics Disable Source selection

Some Genie products have a remote disable relay hardwired on the machine to disable the ignition start or DC motor controller enable.

OEM Telematics providers have the option to shut down the machine using a discrete output connection to the relay or a data bus command as outlined above.

If shutdown occurs via data bus, then the relay should NOT be activated from the telematics device.

Note: Using the discrete output does not allow for speed limiting disable or the display of disable fault notification.

## J1939 Standard Messages

In addition to the Genie Telematics Message, J1939 standard engine messages will also be available on the Genie data bus with the engine models listed below.

- Deutz TD 2.9 L4
- Perkins 404F-22T
- Perkins 854F-34T
- Perkins 1104D-E44TA

OEM Telematics providers should consult with engine manufactures for specific message availability.

## Fuel Level

Some Genie Aerial Work Platforms and Telehandlers do not have GTM support, but may have a CAN module or gauge added to provide fuel level data in the J1939 format. The Fuel level 1 PGN 65276 shall be broadcast on the databus in accordance with the J1939 standard. Check your specific OEM manual to verify the serial number range for equipment that is supported.

ID	PGN	Source Address	Data
Fuel level 1	65276	Telehandlers SA 23	Ratio of volume of fuel to the total volume of fuel storage container
		Aerial Work Platforms SA 18	

# Telematics Software Specifications

## Software Specifications - SmartLink Models

### This Applies to the Following Genie Models

GS-1530	GS-1532	GS-2046	GR-12	QS-12
GS-1930	GS-1932	GS-2646	GR-15	QS-15
	GS-2032	GS-2646 AV	GR-20	QS-20
	GS-2632	GS-3246	GRC-12	
	GS-3232	GS-4047		

### GTM Format

<b>PGN:</b>	61184
<b>Source Address:</b>	0x01
<b>Destination Address:</b>	0x06
<b>Priority:</b>	0x06
<b>Transmit Interval:</b>	As requested from the telematics device. No more than twice per minute.

### Primary Data

START POSITION	LENGTH	PARAMETER
1	1 byte	0x11 - <b>Message Identifier.</b> Primary Data Message
2	1 byte	<b>Reserved.</b> 11b = Not Available
3	2 bytes	<b>Battery Voltage.</b> 0.05 Volt/bit, 0xFFFF = Not Available
5	2 bytes	<b>Machine Utilization Hour Meter.</b> 0.1 hour per bit, 0xFFFF = Not Available (increment for all instances of machine operation)
7.0	2 bits	<b>DC Controller Enable Hour Meter Trigger.</b> 00b=Inactive, 01b=Active, 10=Error, 11=Not Available (telematics device can monitor run time based on Active state)
7.2	2 bits	<b>Reserved.</b> 11b = Not Available
7.4	2 bits	<b>Platform Stowed.</b> 00b=Stowed, 01b=Not Stowed, 10=Error, 11=Not Available
7.6	2 bits	<b>Over Load.</b> 00b=Normal, 01b=Overload, 10=Error, 11=Not Available
8.0	2 bits	<b>Key Switch State.</b> 00b=GCON Mode, 01b=PCON Mode, 10=Error, 11=Not Available (Key Switch OFF state =11b)
8.2	2 bits	<b>Reserved.</b> 11b = Not Available
8.4	2 bits	<b>Machine Off Level.</b> 00b=Level, 01b=Off level, 10=Error, 11=Not Available

# Telematics Software Specifications

## Secondary Data

Note: Transmitted at a minimum of 50 milliseconds following Primary Data.

START POSITION	LENGTH	PARAMETER
1	1 byte	0x12 - <b>Message Identifier.</b> Secondary Data Message
2	1 byte	<b>Battery State of Charge.</b> 0x64h = 100%, 0xFFFF = Not Available
3	1 byte	<b>UTS Pitch.</b> Deg. X10, max 25.5, 0xFFFF = Not Available
4	1 byte	<b>UTS Roll.</b> Deg. X10, max 25.5, 0xFFFF = Not Available
5.0	2 bits	<b>Outrigger Status.</b> 00b=Retracted, 01b=Extended 10=Error, 11=Not Available (Extended indicates supporting weight of machine)
5.2	2 bits	<b>Deck Extend Status.</b> 00b=Retracted, 01b=Extended 10=Error, 11=Not Available
5.4	2 bits	<b>Charger Plugged In.</b> 00b=Unplugged, 01b=Plugged In, 10=Error, 11=Not Available
5.6	2 bits	<b>Reserved.</b> 11b = Not Available
6	1 byte	<b>Reserved.</b> 0xFF = Not Available
7	1 byte	<b>Reserved.</b> 0xFF = Not Available
8	1 byte	<b>Reserved.</b> 0xFF = Not Available

## ACK/Faults

Note: Transmitted at a minimum of 50 milliseconds following Data message(s).

START POSITION	LENGTH	PARAMETER
1	1 byte	0xFE - <b>Message Identifier.</b> Acknowledge and Faults
2.0	2 bits	<b>Remote Disable ACK Status.</b> 00b=Enable, 01b=Disabled Machine, 10=Error, 11=Not Available
2.2	2 bits	<b>Drive Speed Cripple ACK Status.</b> 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
2.4	2 bits	<b>Lift Speed ACK Cripple Status.</b> 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
2.6	2 bits	<b>Reserved.</b> 11b = Not Available
3	4 bytes	<b>Fault Code.</b> Last known fault code

**Machine System Fault Code:** The last known machine system fault code shall be assigned in Start Position 3 of the **ACK/Faults** message.

# Telematics Software Specifications

## Software Specifications - ALC1000 Models

### This Applies to the Following Genie Models

S-100	S-120	SX-150	Z-80/60
S-105	S-125	SX-180	ZX-135/70

Note: This only applies to machines equipped with the Deutz TD 2.9 L4, Perkins 404F-22T and Perkins 854F-22T engine models.

### GTM Format

<b>PGN:</b>	61184
<b>Source Address:</b>	0x19
<b>Destination Address:</b>	0x06
<b>Priority:</b>	0x06
<b>Transmit Interval:</b>	As requested from the telematics device. No more than twice per minute.

### Primary Data

START POSITION	LENGTH	PARAMETER
1	1 byte	0x21 - <b>Message Identifier.</b> Primary Data Message ALC1000T4
2	1 byte	<b>Fuel Level.</b> Data range 0 to 100%, 0.4%/bit, 100%=full, 0xFF=Not Available
3	2 bytes	<b>Battery Voltage.</b> 0.05 Volt/bit
5	2 bytes	<b>Machine Utilization Hour Meter.</b> 0.1 hour per bit, 0xFFFF = Not Available (increment for all instances of machine operation)
7.0	2 bits	<b>Reserved.</b> 11b = Not Available
7.2	2 bits	<b>IC Engine Hour Meter Trigger.</b> 00b=Inactive, 01b=Active, 10=Error, 11=Not Available (telematics device can monitor run time based on Active state)
7.4	2 bits	<b>Boom Stowed.</b> 00b=Stowed, 01b=Not Stowed, 10=Error, 11=Not Available
7.6	2 bits	<b>Over Load.</b> 00b=Normal, 01b=Overload, 10=Error, 11=Not Available
8.0	2 bits	<b>Key Switch State.</b> 00b=GCON Mode, 01b=PCON Mode, 10=Error, 11=Not Available (Key Switch OFF state =11b)
8.2	2 bits	<b>Foot Switch.</b> 00b=Inactive, 01b=Active, 10=Error, 11=Not Available
8.4	2 bits	<b>Machine Off Level.</b> 00b=Level, 01b=Off level, 10=Error, 11=Not Available

# Telematics Software Specifications

## ACK/Faults

Note: Transmitted at a minimum of 50 milliseconds following Data message(s).

START POSITION	LENGTH	PARAMETER
1	1 byte	0xFE - <b>Message Identifier</b> . Acknowledge and Faults
2.0	2 bits	<b>Remote Disable ACK Status</b> . 00b=Enable, 01b=Disabled Machine, 10=Error, 11=Not Available
2.2	2 bits	<b>Drive Speed Cripple ACK Status</b> . 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
2.4	2 bits	<b>Lift Speed ACK Cripple Status</b> . 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
3	4 bytes	<b>Fault Code</b> . Last known fault code

**Machine System Fault Code:** The last known machine system fault code shall be assigned in Start Position 3 of the **ACK/Faults** message. Engine faults shall not be assigned as the telematics device can read them directly from the engine data bus.

# Telematics Software Specifications

## Software Specifications - Plus 1 Models

### This Applies to the Following Genie Models

Z-33/18	Z-40/23	Z-60/37
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### GTM Format

<b>PGN:</b>	61184
<b>Source Address:</b>	0x01
<b>Destination Address:</b>	0x06
<b>Priority:</b>	0x06
<b>Transmit Interval:</b>	As requested from the telematics device. No more than twice per minute.

### Primary Data

START POSITION	LENGTH	PARAMETER
1	1 byte	<b>0x31 - Message Identifier.</b> Primary Data Message
2	1 byte	<b>Fuel Level.</b> Data range 0 to 100%, 0.4%/bit, 100%=full, 0xFF=Not Available
3	2 bytes	<b>Battery Voltage.</b> 0.05 Volt/bit, 0xFFFF = Not Available
5	2 bytes	<b>Machine Utilization Hour Meter.</b> 0.1 hour per bit, 0xFFFF = Not Available (increment for all instances of machine operation)
7.0	2 bits	<b>DC Controller Enable Hour Meter Trigger.</b> 00b=Inactive, 01b=Active, 10=Error, 11=Not Available (telematics device can monitor run time based on Active state)
7.2	2 bits	<b>IC Engine Hour Meter Trigger.</b> 00b=Inactive, 01b=Active, 10=Error, 11=Not Available (telematics device can monitor run time based on Active state)
7.4	2 bits	<b>Boom Stowed.</b> 00b=Stowed, 01b=Not Stowed, 10=Error, 11=Not Available
7.6	2 bits	<b>Over Load.</b> 00b=Normal, 01b=Overload, 10=Error, 11=Not Available
8.0	2 bits	<b>Key Switch State.</b> 00b=GCON Mode, 01b=PCON Mode, 10=Error, 11=Not Available (Key Switch OFF state =11b)
8.2	2 bits	<b>Foot Switch.</b> 00b=Inactive, 01b=Active, 10=Error, 11=Not Available
8.4	2 bits	<b>Machine Off Level.</b> 00b=Level, 01b=Off level, 10=Error, 11=Not Available

# Telematics Software Specifications

## Secondary Data

Note: Transmitted at a minimum of 50 milliseconds following Primary Data.

START POSITION	LENGTH	PARAMETER
1	1 byte	0x32 - <b>Message Identifier.</b> Secondary Data Message Plus 1 Controller
2	1 byte	<b>Battery State of Charge.</b> 0x64h = 100%, 0xFFFF = Not Available
3	1 byte	<b>UTS Pitch.</b> Deg. X10, max 25.5, 0xFFFF = Not Available
4	1 byte	<b>UTS Roll.</b> Deg. X10, max 25.5, 0xFFFF = Not Available
5	2 bits	<b>Reserved.</b> 11b = Not Available
5.2	2 bits	<b>Reserved.</b> 11b = Not Available
5.4	2 bits	<b>Charger Plugged In.</b> 00b=Unplugged, 01b=Plugged In, 10=Error, 11=Not Available
5.6	2 bits	<b>Reserved.</b> 11b = Not Available
6	1 byte	<b>Reserved.</b> 0xFF = Not Available
7	1 byte	<b>Reserved.</b> 0xFF = Not Available
8	1 byte	<b>Reserved.</b> 0xFF = Not Available

## ACK/Faults

Note: Transmitted at a minimum of 50 milliseconds following Data message(s).

START POSITION	LENGTH	PARAMETER
1	1 byte	0xFE - <b>Message Identifier.</b> Acknowledge and Faults
2.0	2 bits	<b>Remote Disable ACK Status.</b> 00b=Enable, 01b=Disabled Machine, 10=Error, 11=Not Available
2.2	2 bits	<b>Drive Speed Cripple ACK Status.</b> 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
2.4	2 bits	<b>Lift Speed ACK Cripple Status.</b> 00b=Normal, 01b=Cripple, 10=Error, 11=Not Available (Cripple defined as low speed operation for all conditions)
3	2 bytes	<b>Fault Code.</b> Last known fault code
5	2 bytes	<b>Fault Count.</b>

**Machine System Fault Code:** The last known machine system fault code shall be assigned in Start Position 3 of the **ACK/Faults** message.



## Telematics I/O Specifications

### Telematics Ready Connector

The telematics connector installed on all Genie machines is an 8 pin Deutsch DT series panel mount receptacle. Depending on the equipment it may be an in-line receptacle.



### Telematics Device Connector

OEM suppliers can connect their telematic devices by equipping with a 8 pin Deutsch plug.



### Telematics Ready Connector Components

Genie Telematics Ready Connector parts and tools are available through Genie Parts Sales.

Website: <http://www.genielift.com>

Phone: (877) 367-5606

Email: [AWP.PartsSalesPO@terex.com](mailto:AWP.PartsSalesPO@terex.com)

Genie part number	Description
61794	Connector, Receptacle, Panel Mount, 8 pin, 14-18 GA
60433	Connector, Receptacle, In Line, 8 pin, 14-18 GA
60447	Terminal Pin, 16-18 GA (used with p/n 87755 and 119069)
73713	Lock, Receptacle, 8 pin (used with p/n 87755 and 119069)
73714	Connector, Plug, 8-pin, 14-18 GA
87755	Terminal Socket, 16-18 GA (used with p/n 119060)
119060	Lock, Plug, 8 pin, 14-18 GA
119069	Crimper, Deutsch, Light Duty

## Telematics I/O Specifications

### Telematics Ready Connector Function Pin Out

Refer to the TRC I/O map to capture machine function states including the remote disable feature.

#### Unavailable I/O

Some Genie models do not support all of the discrete outputs. If a particular circuit feature is not available it shall be left unconnected. There shall be no substitution or other optional wiring.

Refer to the appropriate *TRC Function Pin Out* for your model.

#### Basic TRC Connector I/O Map

Connector Pin-out	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	8-32 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device GND
3	Digital Output 1	12 or 24VDC	Engine Run, Hour meter, Motor Controller Enable 12/24V = active, 0V = inactive	Monitor Engine Hours
4	Digital Output 2	12 or 24 VDC	Key Switch Activation, Platform and Ground 12/24V = active, 0V = inactive	Monitor machine utilization
5	Digital Output 3	12 or 24 VDC	Platform Foot switch 12/24V = active, 0V = inactive	Monitor machine utilization
6	Digital Input 1	12 or 24 VDC	Remote Machine Disable Configurable Active High or Active Low control via wiring at the Disable Relay	Remote Disable Engine Start
7*	Databus H	CAN HIGH	Genie Databus	J1939 Engine Messages, Receive Proprietary Genie Telematics Message
8*	Databus L	CAN LOW	Genie Databus	J1939 Engine Messages, Receive Proprietary Genie Telematics Message

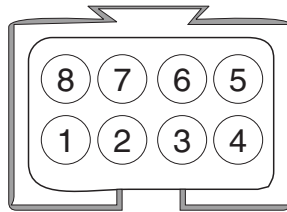
## TRC Function Pin Out

### GR, GRC, QS and Slab Scissor Models

This Legend Only Applies to the Following Genie Models

GS-1530	GS-1532	GS-2046	GR-12	QS-12	Z-33/18
GS-1930	GS-1932	GS-2646	GR-15	QS-15	Z-40/23
	GS-2032	GS-2646 AV	GR-20	QS-20	
	GS-2632	GS-3246	GRC-12		
	GS-3232	GS-4047			

Genie installed Telematics connector is wired with an Active High digital input.



Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	24 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	Digital Output 1	24 VDC	Hour Meter Enable 24V = enabled, 0V = disabled	Monitor Machine Run Hours
4	No Connection		No Connection	
5	No Connection		No Connection	
6	No Connection		No Connection	
7*	Databus H	CAN HIGH	Genie Databus	Receive Proprietary Genie Telematics Message
8*	Databus L	CAN LOW	Genie Databus	Receive Proprietary Genie Telematics Message

\* Genie proprietary databus support

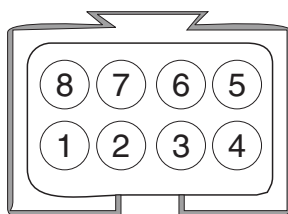
## TRC Function Pin Out

### GS-2669, GS-3369 and GS-4069 DC and Bi-Energy Models

This Legend Only Applies to the Following Genie Models

GS-2669 DC	GS-2669 BE
GS-3369 DC	GS-3369 BE
GS-4069 DC	GS-4069 BE

Genie installed Telematics connector is wired with an Active High digital input.



Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	24 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	No Connection		No Connection	
4	No Connection		No Connection	
5	No Connection		No Connection	
6	No Connection		No Connection	
7*	Databus H	CAN HIGH	Genie Databus	Receive Proprietary Genie Telematics Message
8*	Databus L	CAN LOW	Genie Databus	Receive Proprietary Genie Telematics Message

\* Genie proprietary databus support

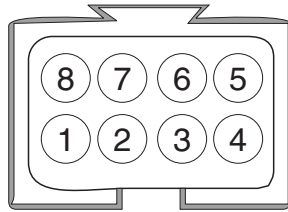
## TRC Function Pin Out

### GS-69 RT, GS-84 RT and GS-90 RT Models

#### This Legend Only Applies to the Following Genie Models

GS-2669 RT	GS-3384 RT	GS-3390 RT
GS-3369 RT		GS-4390 RT
GS-4069 RT		GS-5390 RT

Genie installed Telematics connector is wired with an Active High digital input.



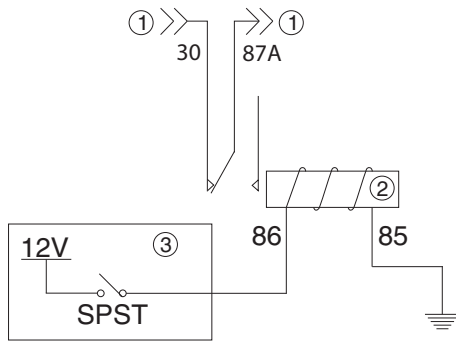
Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	12 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	Digital Output 1	12 VDC	Engine Run Hour Meter 12V = engine run, 0V = engine off	Monitor Engine Hours
4	Digital Output 2	12 VDC	Key Switch 12V = Key SW On, 0V = Key SW Off	
5	No Connection		No Connection	Monitor machine utilization
6	Digital Input 1	12 VDC (standard) or ground (optional)	Remote Disable Engine Start	Remote Engine Shutdown
7*	Databus H	CAN HIGH	Genie Databus	J1939 engine message
8*	Databus L	CAN LOW	Genie Databus	J1939 engine message

\* Tier IV engine models only

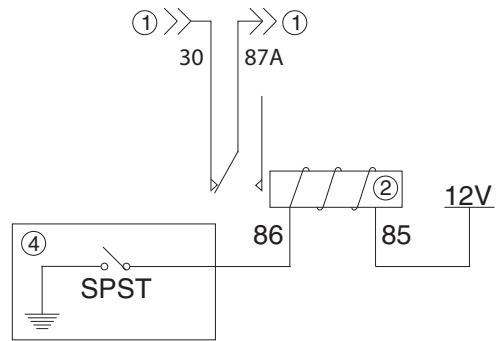
# TRC Function Pin Out

## Remote Disable Engine Start Relay Configuration

Telematics Active High - Schematic  
(standard wiring)



Telematics Active Low - Schematic  
(optional wiring)



- 1 Ignition Start Input
- 2 Relay
- 3 Telematics with Active High input
- 4 Telematics with Active Low input

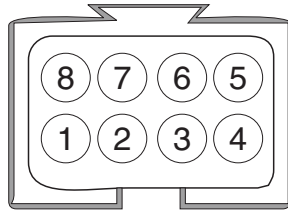
## TRC Function Pin Out

### Z-30N, Z-34 DC and Z-45 DC Models

#### This Legend Only Applies to the Following Genie Models

Z-30/20N	Z-45/25 DC
Z-30/20N RJ	Z-45/25J DC
Z-34/22 DC	

Genie installed Telematics connector is wired with an Active High digital input.

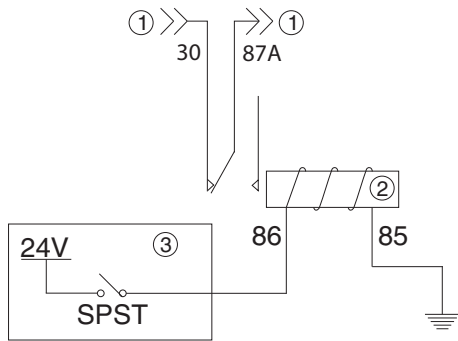


Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	24 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	Digital Output 1	24 VDC	Hour Meter 24V = active, 0V = inactive	Monitor Machine Run Hours
4	Digital Output 2	24 VDC	Key Switch Activation 24V = Key SW On, 0V = Key SW Off	Monitor Machine Utilization
5	Digital Output 3	24 VDC	Foot Switch 24V = active, 0V = inactive	Monitor Machine Utilization
6	Digital Input 1	24 VDC (standard) or Ground (optional)	Remote Machine Disable	Remote Motor Controller Shutdown
7	No Connection		No Connection	
8	No Connection		No Connection	

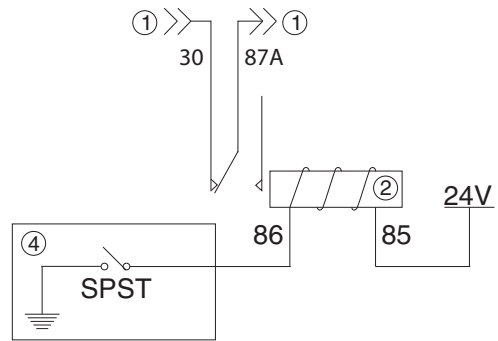
# TRC Function Pin Out

## Remote Disable relay Configuration

Telematics Active High - Schematic  
(standard wiring)



Telematics Active Low - Schematic  
(optional wiring)



- 1 Ignition Start Input
- 2 Relay
- 3 Telematics with Active High input
- 4 Telematics with Active Low input



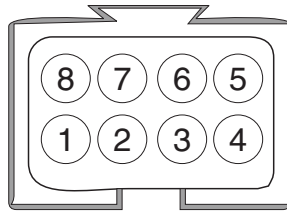
## TRC Function Pin Out

### S and Z Booms, IC and Bi-Energy Models

This Legend Only Applies to the Following Genie Models

S-40	S-60	S-80	Z-34/22 (BE)
S-40 TRAX	S-60 X	S-80 X	Z-34/22 (IC)
S-45	S-60 XC	S-85	Z-45/25 (BE)
S-45 TRAX	S-60 TRAX		Z-45/25 (IC)
	S-65		Z-45/25J (IC)
	S-65 TRAX		Z-51/30
			Z-62/40

Genie installed Telematics connector is wired with an Active High digital input.



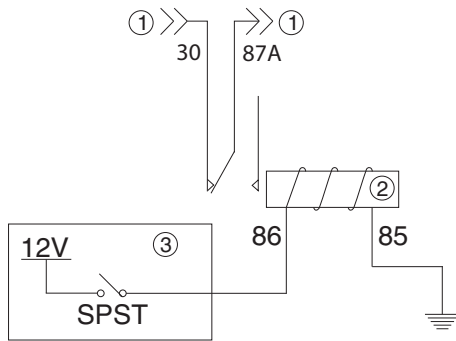
Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	12 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	Digital Output 1	12 VDC	Engine Run Hour Meter 12V = engine run, 0V = engine off	Monitor Engine Hours
4	Digital Output 2	12 VDC	Key Switch Activation 12V = Key SW On, 0V = Key SW Off	Monitor Machine Utilization
5	Digital Output 3	12 VDC	Foot Switch 12V = active, 0V = inactive	Monitor Machine Utilization
6	Digital Input 1	12 VDC (standard) or ground (optional)	Remote Disable Engine Start	Remotely Prevent Engine Start
7 *	Databus H	CAN HIGH	Genie Databus	J1939 Engine Messages
8 *	Databus L	CAN LOW	Genie Databus	J1939 Engine Messages

\* ALC-500 Tier IV engine models only

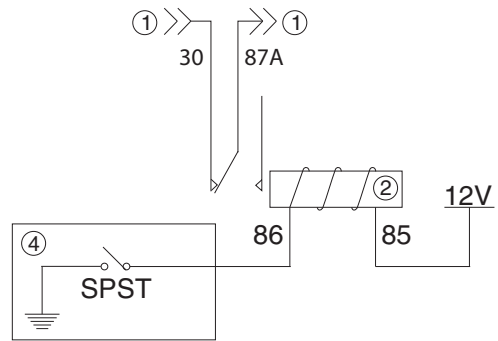
# TRC Function Pin Out

## Remote Disable Engine Start Relay Configuration

Telematics Active High - Schematic  
(standard wiring)



Telematics Active Low - Schematic  
(optional wiring)



- 1 Ignition Start Input
- 2 Relay
- 3 Telematics with Active High input
- 4 Telematics with Active Low input

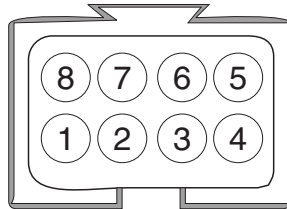
## TRC Function Pin Out

### S and Z Booms, ALC-1000 Models

#### This Legend Only Applies to the Following Genie Models

S-100	S-100 HD	Z-80/60
S-105	S-120 HD	ZX-135/70
S-120	SX-150	
S-125	SX-180	

Genie installed Telematics connector is wired with an Active High digital input.



Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	12 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	Digital Output 1	12 VDC	Engine Run Hour Meter 12V = engine run, 0V = engine off	Monitor Engine Hours
4	Digital Output 2	12 VDC	Key Switch Activation 12V = Key SW On, 0V = Key SW Off	Monitor Machine Utilization
5	Digital Output 3	12 VDC	Foot Switch 12V = active, 0V = inactive	Monitor Machine Utilization
6	Digital Input 1	12 VDC (standard) or ground (optional)	Remote Disable Engine Start	Remotely Prevent Engine Start
7 *	Databus H	CAN HIGH	Genie Databus	J1939 Engine Messages, Receive Proprietary Genie Telematics Message
8 *	Databus L	CAN LOW	Genie Databus	J1939 Engine Messages, Receive Proprietary Genie Telematics Message

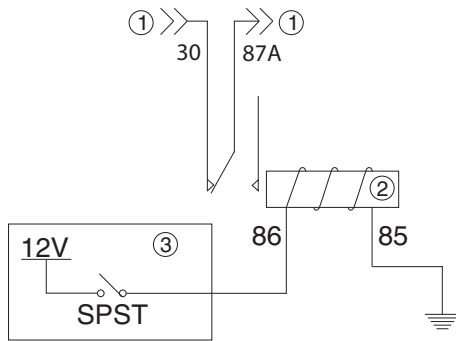
\* Tier IV engine models only

\* Genie proprietary databus support

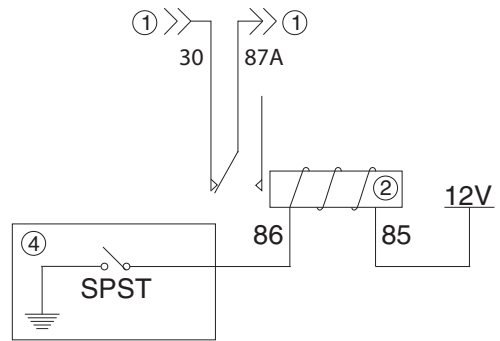
# TRC Function Pin Out

## Remote Disable Engine Start Relay Configuration

Telematics Active High - Schematic  
(standard wiring)



Telematics Active Low - Schematic  
(optional wiring)



- 1 Ignition Start Input
- 2 Relay
- 3 Telematics with Active High input
- 4 Telematics with Active Low input

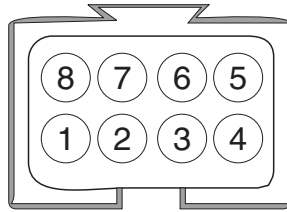
## TRC Function Pin Out

### GTH Models

This Legend Only Applies to the Following Genie Models

GTH-636	GTH-1256
GTH-844	GTH-1544
GTH-1056	GTH-5519

Genie installed Telematics connector is wired with an Active High digital input.



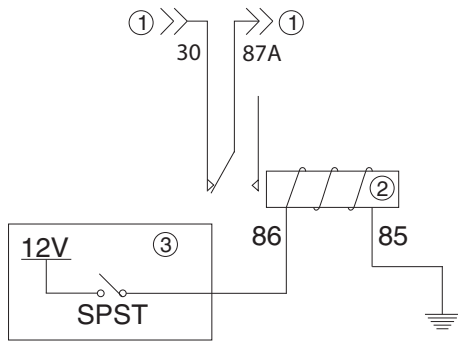
Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	12 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	Digital Output 1	12 VDC	Engine Run Hour Meter 12V = engine run, 0V = engine off	Monitor Engine Hours
4*	Digital Output 2	12 VDC	Boom Angle Status 12V = boom >55°, 0V <55°	Monitor Machine Utilization
5	Digital Output 3	12 VDC	Parking Brake 12V = active, 0V = inactive	Monitor Machine Utilization
6	Digital Input 1	12 VDC (standard) or Ground (optional)	Remote Disable Engine Start	Remotely Prevent Engine Start
7	CAN HIGH	J1939	Databus HIGH J1939	Receive J1939 Engine Data
8	CAN LOW	J1939	Databus LOW J1939	Receive J1939 Engine Data

\* Not available on GTH-636

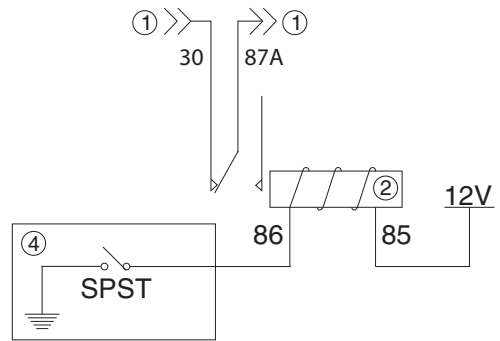
# TRC Function Pin Out

## Remote Disable Engine Start Relay Configuration

Telematics Active High - Schematic  
(standard wiring)



Telematics Active Low - Schematic  
(optional wiring)



- 1 Ignition Start Input
- 2 Relay
- 3 Telematics with Active High input
- 4 Telematics with Active Low input

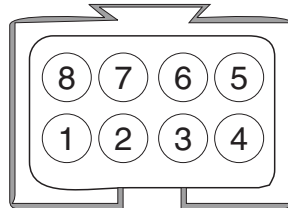
# TRC Function Pin Out

## Light Tower Models

This Legend Only Applies to the Following Genie Models

AL4	AL5	AL5HT	RL4
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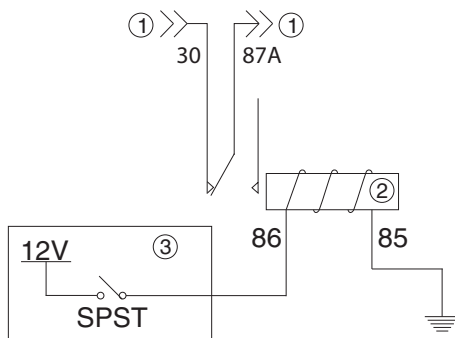
Genie installed Telematics connector is wired with an Active High digital input.



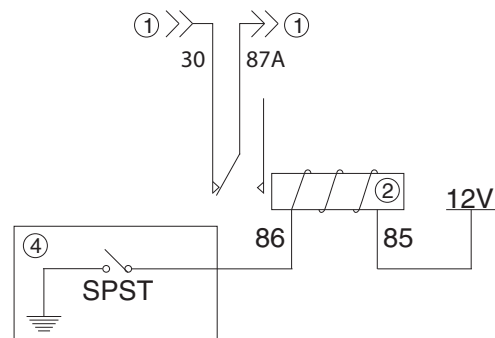
Pin	Circuit Type	Circuit Properties	Genie Machine Function(s)	Telematics Use Case
1	System Power	12 VDC 5 Amp Max. allowed draw	Battery Positive – constant power	Supply power to device
2	System Ground	0 VDC	Battery Negative	Device Ground
3	Digital Output 1	12 VDC	Hour Meter Enable 12V = enabled, 0V = disabled	Monitor Machine Run Hours
4	No Connection		No Connection	
5	No Connection		No Connection	
6	Digital Input 1	12 VDC	Remote Light Enable	Remotely turn on lights
7	No Connection		No Connection	
8	No Connection		No Connection	

## Remote Disable Engine Start Relay Configuration

Telematics Active High - Schematic (standard wiring)



Telematics Active Low - Schematic (optional wiring)



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Fax 0046 3157 5104

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