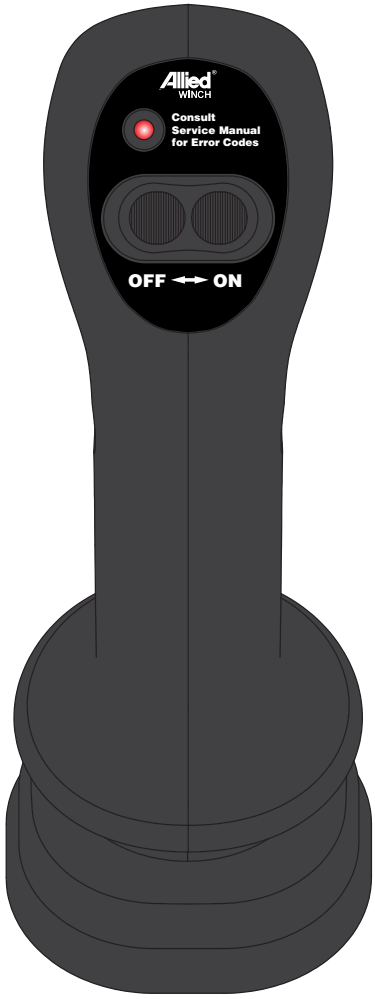
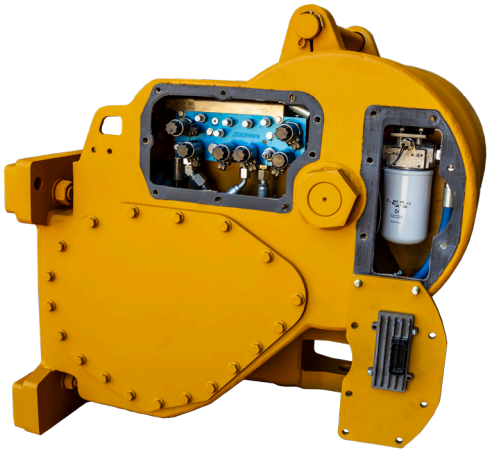
Service Manual





eControls

W6G, W8L & W12E

Gen II eControls (ECM) & Optional Bluetooth Diagnostic Adapter

Please check the Allied Systems website regularly for updates to this manual.
www.alliedsystems.com

A Product of
Allied Systems COMPANY
Sherwood, OR USA

P/N 599069W

Printed in USA

03/14/2025

Safety Precautions

Read, understand and observe the precautions on the following pages to prevent injury to personnel and damage to equipment.

Winch serial number _____

Date put into service _____

Note: This publication may be translated to different languages for sole purpose of easy reference in non-English speaking locations. Should there be differences in interpretations to the text, please refer to the English language edition published by Allied Systems Company as the controlling document.

Contents

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General Safety Notices

The following pages contain general safety warnings which supplement specific warnings and cautions appearing elsewhere in this manual. All electrical and hydraulic equipment is dangerous. You must thoroughly review and understand the Safety Summary before attempting to operate, troubleshoot or service this winch.

The following symbols and terms are used to emphasize safety precautions and notices in this manual:

⚠ DANGER

The "DANGER" symbol indicates a hazardous situation which, if not avoided, will result in serious injury or death. Carefully read the message that follows to prevent serious injury or death.

⚠ WARNING

The "WARNING" symbol appears wherever incorrect operating procedures or practices could cause serious injury or death. Carefully read the message that follows to prevent serious injury or death.

⚠ CAUTION

The "CAUTION" symbol appears where a hazardous situation which, if not avoided, could result in minor to moderate injury and equipment damage.

NOTICE

This signal word alerts to a situation that is not related to personal injury but may cause equipment damage.

NOTE: …

The term "NOTE" highlights operating procedures or practices that may improve equipment reliability and/or personnel performance.

NOTE: All possible safety hazards cannot be foreseen so as to be included in this manual. Therefore, you must always be alert to potential hazards that could endanger personnel and/or damage the equipment.

Safety Regulations

Each country has its own safety legislation. It is in the operator's own interest to be conversant with these regulations and to comply with them in full. This also applies to local bylaws and regulations in force on a particular work site.

Should the recommendations in this manual deviate from those in the user's country, the national regulations should be followed.

Operation, Inspection, and Maintenance Warnings

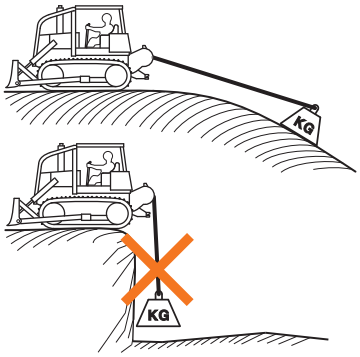
⚠ WARNING

Obey the following cautions and warnings before using your winch to avoid equipment damage, personal injury or death.

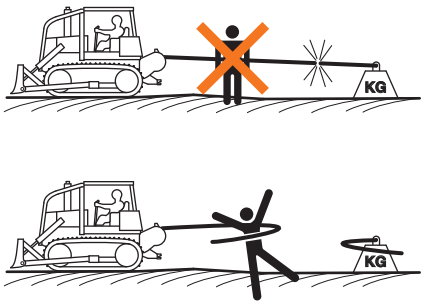
- Do not operate the winch unless your are authorized and trained to do so.
- Do not operate the winch unless the vehicle is equipped with a screen to protect the operator if the wire rope breaks.
- Read, understand, and follow the operating, inspection, and maintenance instructions in this manual.
- Do not use the control levers for hand holds when entering or leaving the vehicle.
- Do not permit other people near the control area when you inspect or repair a machine.
- Never inspect, repair, or perform maintenance on a machine that is in motion.
- Inspect the winch before each use:
  - » Make sure that the controls and instruments operate correctly.
  - » Report the need for repairs immediately.
  - » Do not work with a damaged or worn wire rope.
  - » Do not use a winch that needs repairs.
  - » If the wire rope and ferrule must be removed from the drum, make sure the end of the wire rope and ferrule are controlled when the ferrule is released. The end of the wire rope can suddenly move from the drum like a compressed spring when the ferrule is released and cause an injury.
- Stay in the operator's seat when operating the winch.
- Do not stand on the vehicle when operating the winch.

Safety Summary

- Avoid winch operation near people or other machines.
- Never stand nor permit others to stand in the bight (loop) of a wire rope.
- Do not stand nor permit others to be near the winch or wire rope when there is tension on the wire rope.
- Observe job site rules.
- Be in complete control at all times.
- Do not use the control levers as hangers for clothes, water bags, grease guns, lunch pails, etc.
- Do not leave the vehicle when the winch wire rope is under tension.
- Do not permit riders on the vehicle or load.
- Do not use the winch as an anchor for a double or two-part line.
- Do not pull the hook through the throat or over the drum, which will cause damage.
- When the winch is not in use, make sure the control lever is in BRAKE-ON position and the winch brake is applied.
- Do not use winch as a hoist. Tractor and skidder mounted winches are designed for towing.



- Always inspect wire rope, tail chain and other rigging components for wear, damage, broken strands or abuse before use.
- Never use wire rope, tail chain or other rigging that is worn-out, damaged or abused.
- Never overload wire rope, tail chain or rigging.
- Wire rope and tail chain will fail if worn-out, overloaded, misused, damaged, improperly maintained or abused. Wire rope or tail chain failure may cause serious injury or death!



- Do not terminate wire rope to tail chain by the use of a knot.
- Do not handle wire rope if the hook end is not free. A load could break away, suddenly tensioning the wire rope, resulting in serious injury or death.
- Stay clear of wire rope entry areas (fairlead or arch rollers, winch drum etc).
- Make sure that ground personnel are in plain view of the operator, and at a distance of at least 1½ times the working length of the wire rope.
- Make sure that any hand signals used by ground personnel are clearly defined and understood by everyone involved.
- Do not attempt to “jerk” or “shock” a load free. Doing so can cause loads in excess of the rated capacity of the wire rope, winch, or mounting hardware.
- Replace any parts only with genuine Allied Winch parts. Refer to parts manual 599015W.
- Maintain a minimum of three (3) complete wraps of wire rope on the drum for normal operation. It may help to paint the last five (5) wraps of wire rope a contrasting color, to serve as a visual indicator.
- Do not handle wire rope with bare hands. Wear leather gloves at all times.
- Align the tractor with the load to prevent side loading the winch, and to maintain even spooling of the wire rope.
- If applying tension to the wire rope manually during spooling:
  - » ensure that the operator is winching in slowly,
  - » keep your hands and clothing well clear of any rollers or the winch drum,
  - » do not maintain tension by letting the wire rope to slip through your hands,
  - » use a hand-over-hand technique to maintain tension.
- Be aware of the ground conditions, and make sure the ground and tractor are stable enough to pull the intended load.

- Do not attempt to pull loads in excess of the rated capacity of the winch.
- Keep yourself informed of any applicable codes, regulations and standards for the job.
- Your winch may have temperature shut-off system for protection of tractor and winch. Manual override of high temperature shut-off will cause damage to tractor and winch.
- This winch is neither intended, designed, nor rated for any application involved in the lifting or moving of personnel.
- Use only the lubricants listed in the Recommended Oil List.
- Do not weld on any part of the winch. Contact Allied Systems if weld repairs are needed.
- The hydraulic system must be kept clean and free of contamination at all times.
- Be aware of the hazards of pressurized hydraulics:
  - » Wear personal protective equipment, such as gloves and safety glasses, whenever servicing or checking a hydraulic system.
  - » Assume that all hydraulic hoses and components are pressurized. Relieve all hydraulic pressure before disconnecting any hydraulic line.
  - » Never try to stop or check for a hydraulic leak with any part of your body; use a piece of cardboard to check for hydraulic leaks.
  - » Small hydraulic hose leaks are extremely dangerous, and can inject hydraulic oil under the skin, even through gloves.
  - » Infection and gangrene are possible when hydraulic oil penetrates the skin. See a doctor immediately to prevent loss of limb or death.

Product Modifications

Any alterations to the product, that have not been approved by Allied Systems Company or use of any non-OEM replacement parts will void the warranty, and may introduce serious safety hazards. Any non-OEM parts used, or any alterations made are done so at your own risk to personnel safety. This includes the addition of accessories and attachments not manufactured by Allied Systems Company.

Ordering Parts:

When ordering replacement parts, give the unit serial number,

part number, name of part and quantity required.

For any further information on parts, service or ordering, consult your local winch dealer, or contact Allied Systems Company:

Allied Systems Company

21433 SW Oregon Street

Sherwood, OR 97140

U.S.A.

Phone: 502-624-2560

Fax: 502-624-5132

E-Mail: parts@alliedsystems.com

Also see our website, www.alliedsystems.com, where the most current copy of this manual is always available.

Notes

General

Introduction

This service manual covers the eControl Manifold, Gen II eController, Joystick, & Optional Bluetooth Diagnostic Adapter, which are used on the W6G, W8L, and W12E winches.

Description

The eControl master system is a communication interface which coordinates data between the manifold, module, joystick & optional bluetooth adapter.

Manifold

- Improved electronic control over hydraulic system to eliminate rollback and bring load to a stop as fast as possible in an emergency.
- Larger fluid paths for better cooling and more responsive clutch control.
- Kit is backwards compatible with almost all existing W6G, W8L, and W12E winches with eControls.

Electronic Controller

- Robust Design.
- Now located inside of the filter cover for easy access.
- Improved diagnostics with optional Bluetooth Diagnostics Adapter.

Joystick

- LED light displays error codes, including change oil filter and electrical faults.
- Inching performance that rivals a hydraulic winch.
- Ergonomic design.

Bluetooth Diagnostics Adapter (optional)

- Conveniently allows user to see live winch diagnostics data on an iOS or Android device. (Part number 2317456)

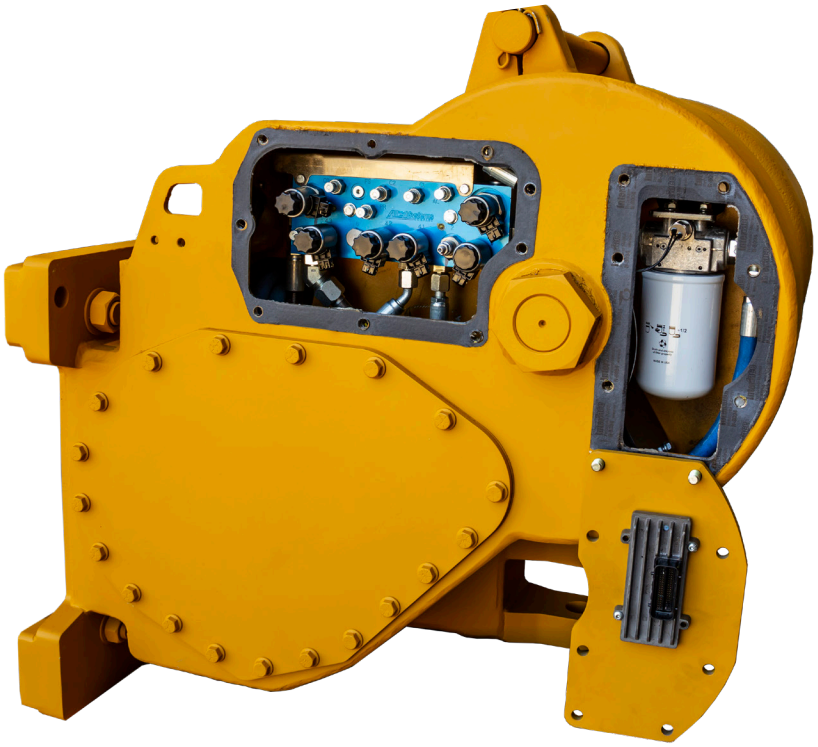


Figure 1-1 eControl components for W6G, W8L & W12E winches

Manifold

General Description

The improved eControl manifold system with better cooling, larger fluid paths and responsive clutch control, helps to eliminate rollback and brings a stop to the load faster in an emergency.

There are also backward compatible kits available with almost all existing W6G, W8L, and W12E winches with eControls.

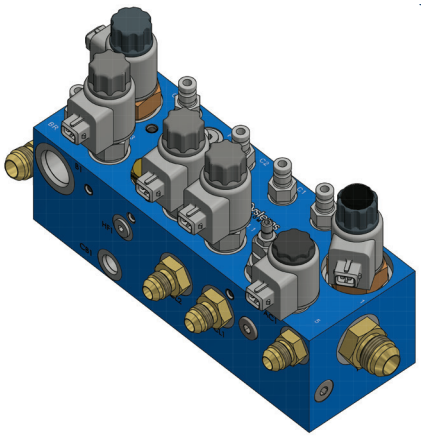
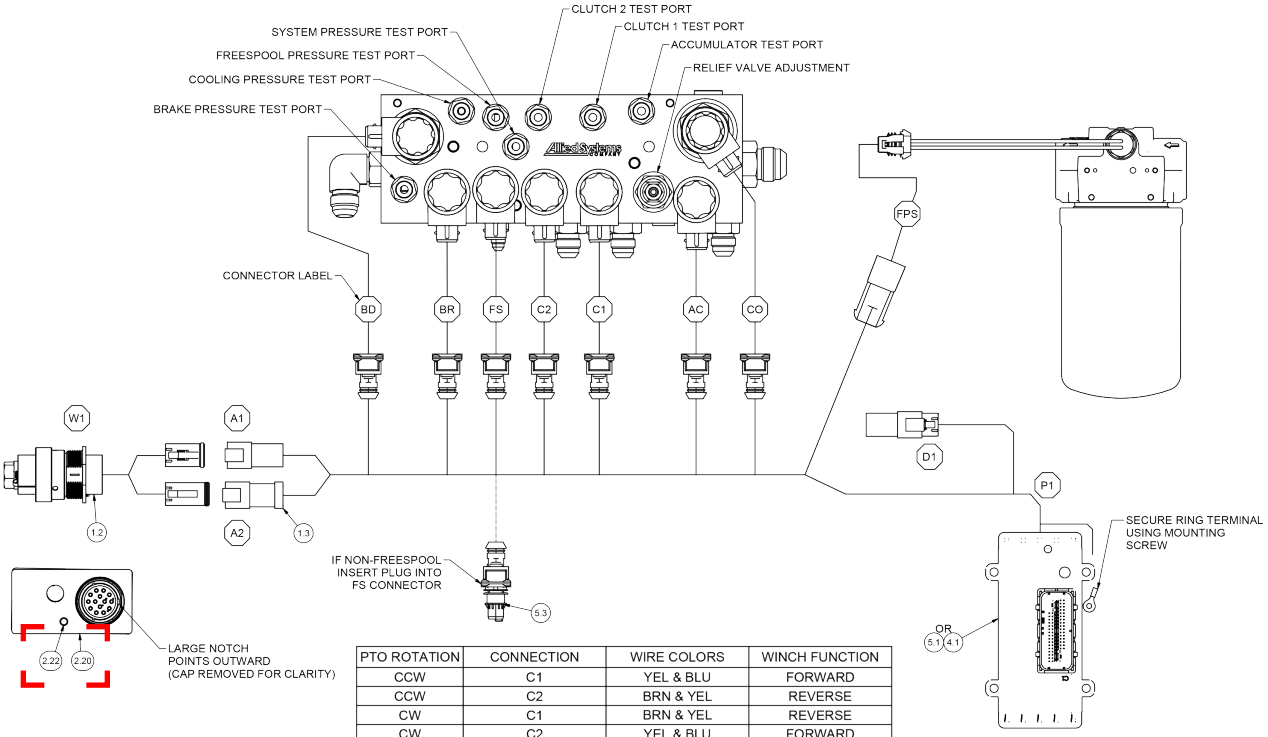


Figure 1-2 Non-Freespool Manifold

Non-Freespool Internal Harness Installation

1. To install adapter harness, the hole of the front face of the winch may need to be enlarged to accommodate the large aluminum connector. If enlargement is necessary, use retainer plate (Figure 1-3; item 2.20) to center hole location when retainer plate is mounted. Enlarge hole to 1.368-1.373 in. diameter.
2. Install adapter harness into hole from the front of the winch. Apply RTV sealant P/N (1324880W) to back side of connector behind flange.
3. Secure connector in place using retaining plate and tighten bolt. Use screw (Figure 1-3; item 2.22) to secure connector cap chain to retainer plate.
4. Install internal harness making connections described above. Secure ring terminal to controller mounting screw.



PTO ROTATION	CONNECTION	WIRE COLORS	WINCH FUNCTION
CCW	C1	YEL & BLU	FORWARD
CCW	C2	BRN & YEL	REVERSE
CW	C1	BRN & YEL	REVERSE
CW	C2	YEL & BLU	FORWARD
---	BD	ORG & BLK	BRAKE DUMP
---	BR	PUR & TAN	BRAKE RELEASE
---	FS	GRN & BLK	FREESPOOL
---	AC	PINK & BLK	ACCUMULATOR
---	CO	GRAY & BLK	COOLING
---	FPS	RED & WHT	PR. SWITCH

Figure 1-3 Non-Freespool Manifold Schematic

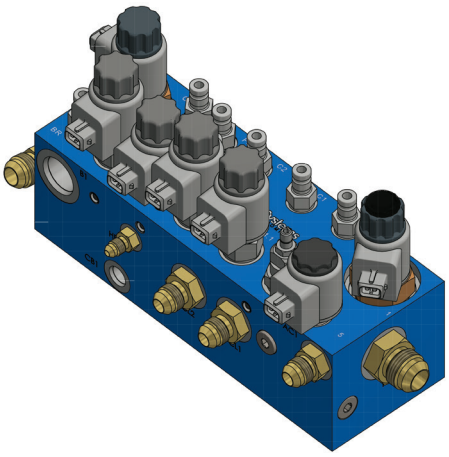
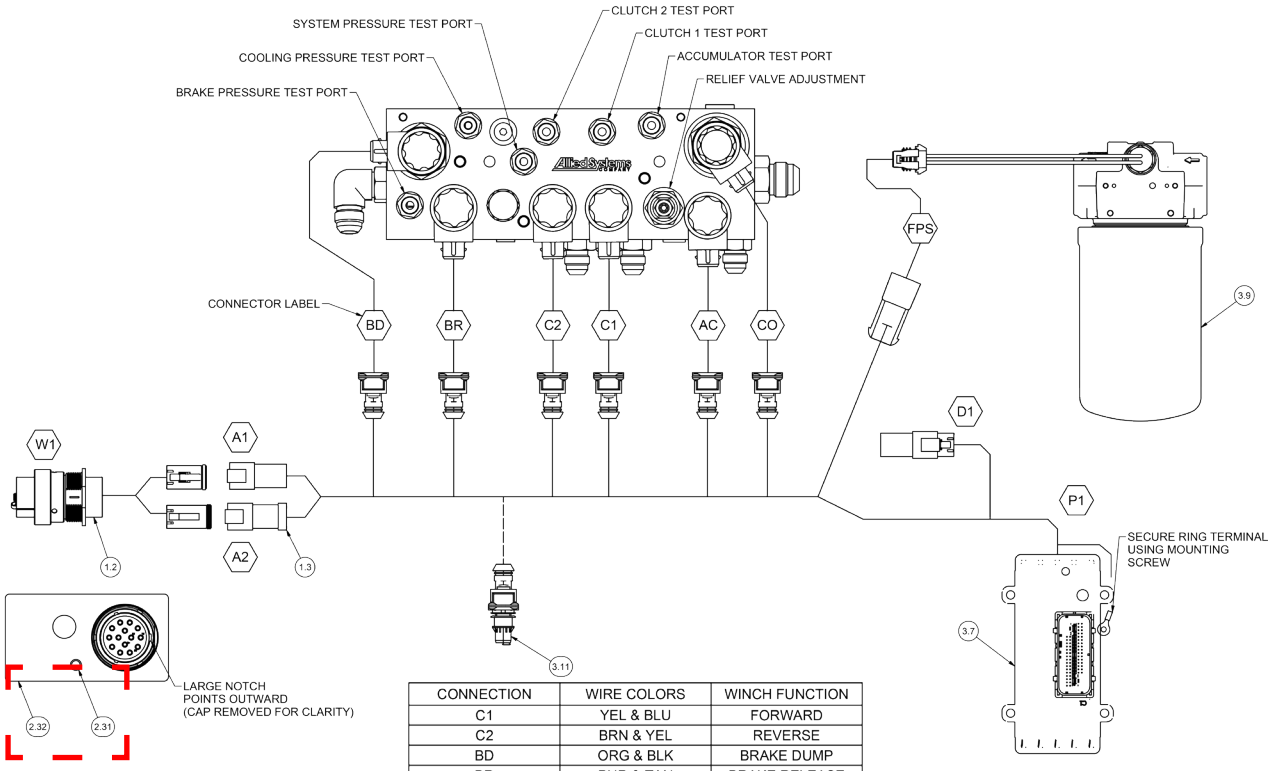


Figure 1-4 Freespool Manifold

Freespool Internal Harness Installation

1. To install adapter harness, the hole of the front face of the winch may need to be enlarged to accommodate the large aluminum connector. If enlargement is necessary, use retainer plate (Figure 1-5; item 2.32) to center hole location when retainer plate is mounted. Enlarge hole to 1.368-1.373 in. diameter.
2. Install adapter harness into hole from the front of the winch. Apply RTV sealant P/N (1324880W) to back side of connector behind flange.
3. Secure connector in place using retaining plate and tighten bolt. Use screw (Figure 1-5; item 2.31) to secure connector cap chain to retainer plate.
4. Install internal harness making connections described above. Secure ring terminal to controller mounting screw.



CONNECTION	WIRE COLORS	WINCH FUNCTION
C1	YEL & BLU	FORWARD
C2	BRN & YEL	REVERSE
BD	ORG & BLK	BRAKE DUMP
BR	PUR & TAN	BRAKE RELEASE
FS	GRN & BLK	FREESPOOL
AC	PINK & BLK	ACCUMULATOR
CO	GRAY & BLK	COOLING
FPS	RED & WHT	PR. SWITCH

Figure 1-5 Freespool Manifold Schematic

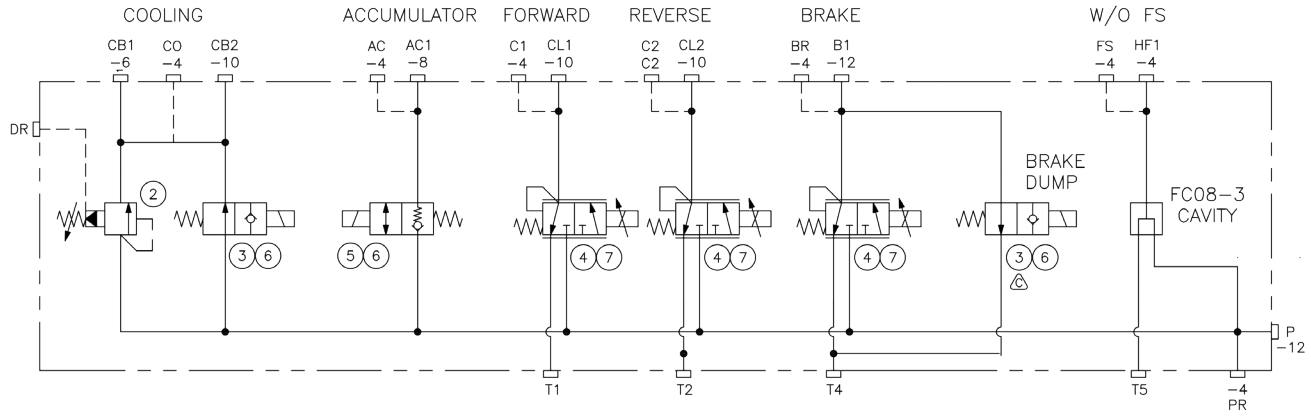


Figure 1-6 Manifold Schematic

Manifold Schematic

General

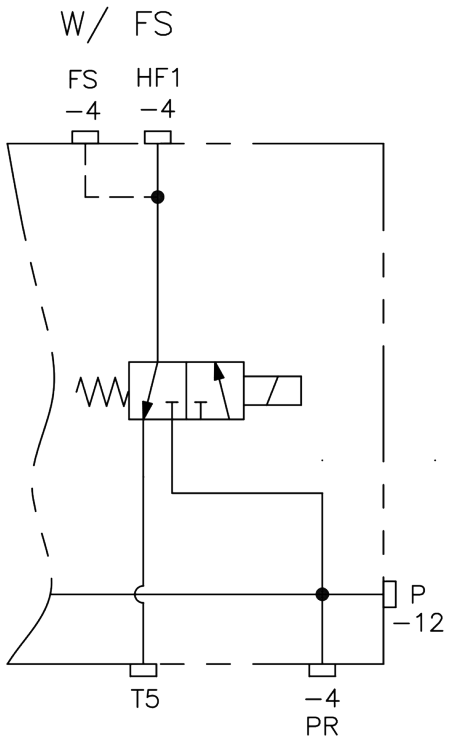
- Housing Material: aluminum, blue anodized
- Ambient Storage Temperature Range:
  - » min. -4°F.
  - » max. +140°F.
- Mounting Position(s): All
- Cartridge Installation Torques:
  - » all 7/8 Hex Head: 18-22 ft-lbs; (25-29 N-M)
  - » all 1 1/2 Hex Head: 96-133 ft-lbs; (131-180 N-M)

Hydraulic

- Operating Fluid: mineral based hydraulic fluid
- Operating Fluid Temperature Range:
  - » min. -4°F.
  - » max. +248°F.
- Viscosity Range:
  - » min. 5 Sus
  - » max. 2000 Sus
- Max. Operating Pressure: 900 psi
- Max. Flow Rate: 10 gpm
- Filtration:
  - » maximum permissible contamination level of operating fluid to ISO 4406 class 21/19/16 and 18/16 /13.
  - » use a filter with a minimum retention rate of $\beta_{10} \geq 200$.

Electrical

- Nominal Voltage: 24 VDC
- Duty Cycle:
  - » 100% (continuous operation)at 115% of nominal voltage
- Max Coil Temp: 320°F (160°C)
- Type Of Connection: AMP JR timer



REFERENCE ONLY
Hydraulic circuit for when freespool is used
The cartridge valve and solenoid to be specified on or with the hydraulics arrangement when the freespool option is needed

ECM Module

General Description

The sturdy upgraded easily accessed design has been relocated inside of the filter cover and offers an (optional) improved Bluetooth Diagnostics Adapter.v

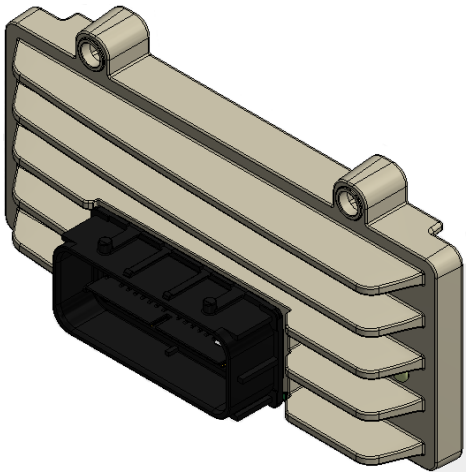


Figure 1-7 Electronic Controller Module

Figure 1-8 Module Location

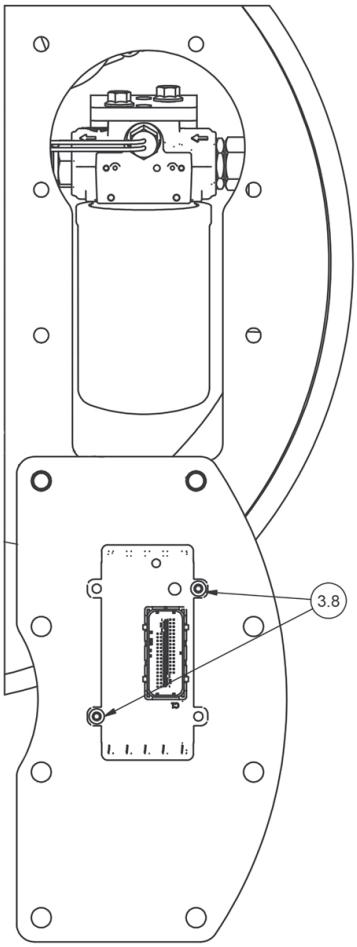


Figure 1-9 Mounting Detail

Mounting Instructions: (Figure 1-9)

- Apply loctite 242 ASC P/N 230064W to short ends of studs and thread into winch frame up to shoulder. Rest supplied filter cover upside down on studs.
- Apply loctite 242 ASC P/N 230064W onto mounting screw threads and secure winch controller in orientation as shown above. The connector must be on the right side.

Joystick

General Description

The ergonomically designed joystick, combined with excellent inching control, provides superior performance vs. hydraulic powered winches.

When the activation switch is turned **OFF**, the LED will illuminate continuously. When the activation switch is turned **ON**, the LED will be off. If it is blinking, this indicates an error that should be addressed. If there are errors important to winch safety, the winch will remain in the off state even when the switch is in the **ON** position. Refer to error codes in Section 2 to determine the cause of the error.

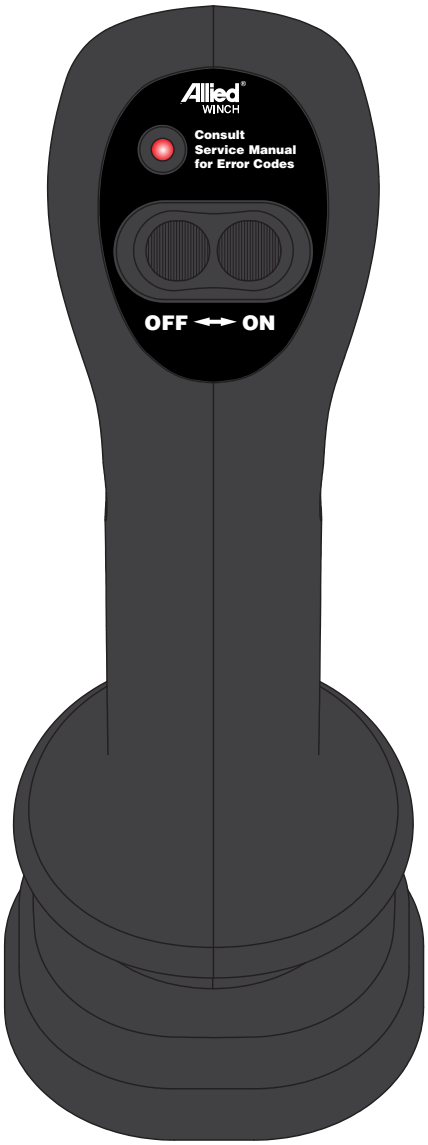


Figure 1-10 Joystick on Right Console

Control Functions

The joystick controls the winch functions. See Figures 1-11 (Freespool) & 1-12 (Non-Freespool).

- In the center position, the winch is in **Brake-On**.
- Move the joystick handle to the left (toward the blade at the front of the dozer) to activate **Line-In**.
- Move the joystick handle to the right (away from the blade at the front of the dozer) to activate **Line-Out.**
- Move the joystick handle forward to the detented position to activate **Brake-Off.**
- Move the joystick handle rearward to the detented position to activate **Freespool** (for winches so equipped), or **Brake-Off.**

Refer to your operator's manual for complete descriptions of these functions.

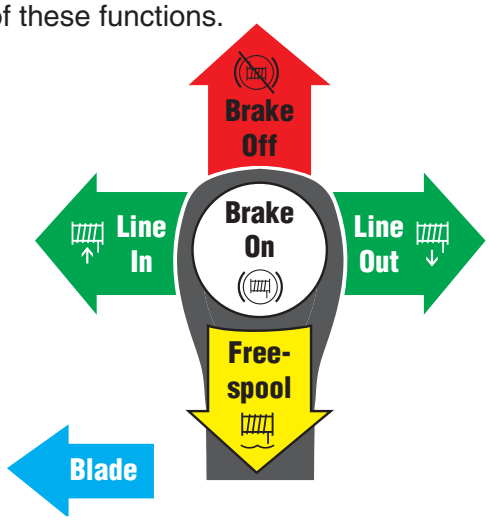


Figure 1-11 Winches with Freespool

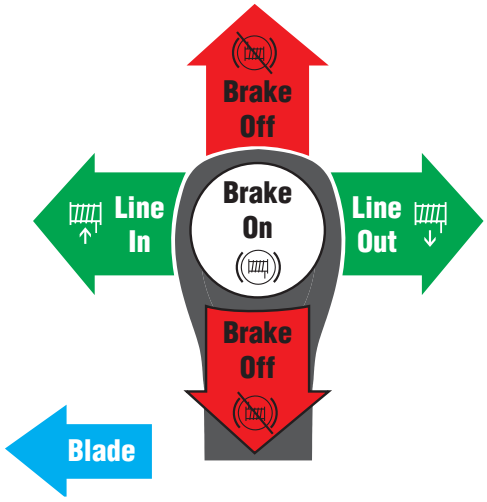
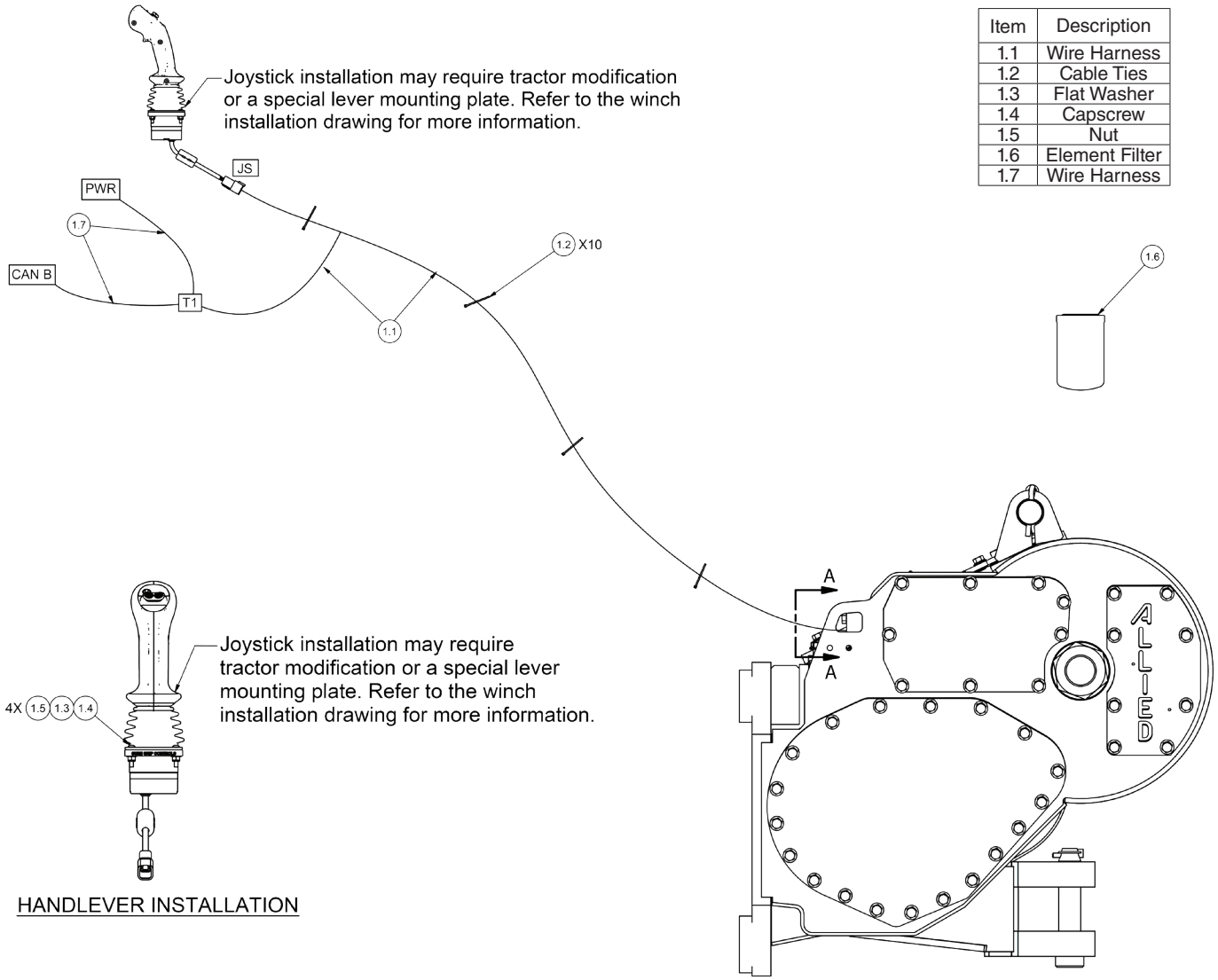


Figure 1-12 Winches Non Freespool



Item	Description
1.1	Wire Harness
1.2	Cable Ties
1.3	Flat Washer
1.4	Capscrew
1.5	Nut
1.6	Element Filter
1.7	Wire Harness

Figure 1-13 Installation - eControl Common Parts

eControls Installation Instructions:

Any tractor specific items will be outlined in the winch installation documentation

1. Secure the tractor per OEM recommendations prior to initiating any work.
2. Install the winch as directed in the tractor specific winch installation documentation.
3. Route external wiring harness through the tractor chassis. Protect the circular aluminum connector (winch end) from debris. Tie and strain-relieve the harness as needed to prevent rubbing and stretching.
4. If a cable guard has been supplied, install the cable guard as specified in the winch installation documentation.
5. Install the handlever and decal as specified in the winch installation documentation. Connect the wire harness to the handlever connector.
6. If CAT tractor with lock-up clutch, use extension harness as shown on installation drawing.

Operation and Control

Electronic Controls

The electronic control assembly has one joystick that is connected to the winch through electrical wiring, an ECM module and a solenoid-actuated control valve. This lever is used to select one of the following operations:

- BRAKE-OFF
- LINE-OUT
- BRAKE-ON
- LINE-IN
- FREESPOOL (Optional)

NOTE: Consult the Troubleshooting subsection in Section 3 if the filter LED does not turn off.

NOTE: The winch will not operate unless the joystick is centered at startup.

Description of Operations

BRAKE-OFF and **FREESPOOL** are detented positions on the joystick, and the operator must pull the lever to release it from those positions. The lever will return from the **LINE-IN** and **LINE- OUT** to the **BRAKE-ON** position when released. With the lever in the **BRAKE-OFF** position, oil pressure releases the brake but wire rope cannot be pulled from the winch by hand because of friction in the clutches, brake and gear train. The **BRAKE-OFF** position is used when the operator has a load attached to the winch wire rope. The operator can move the tractor forward without moving the load.

LINE-OUT position applies the reverse clutch and releases the brake. The winch will unwind the wire rope at a speed controlled by the PTO speed of the tractor and the weight of the load.

BRAKE-ON is a neutral position. No hydraulic pressure is applied to the brake or the clutches. Springs apply the brake so that the winch drum will not rotate.

LINE-IN position applies the forward clutch and releases the brake. The winch will wind the wire rope at a speed controlled by the PTO speed of the tractor.

INCHING is used for fine control of the load. When the joystick is slowly moved to a position between **BRAKE-ON** and **LINE-IN** or between **BRAKE-ON** and **LINE-OUT**, inching occurs.

NOTE: Inching rapidly increases the temperatures of the clutch, the brakes and the oil, and will accelerate clutch and brake wear.

Inching (LINE-IN). This operation is used to slowly move a load toward the tractor. As the joystick is moved gradually towards the LINE-IN position, the control valve will cause the oil pressure to slowly release the brake and slowly apply the forward clutch. As the brake is released, the clutch takes control and begins to move the load.

Inching (LINE-OUT). This operation will release the brake as the reverse clutch is applied. This permits the weight of the load, with assistance from the reverse clutch, to unwind wire rope from the winch drum against the resistance of the brake. The operator controls the resistance of the brake by the position of the joystick.

Freespool Operations (See Figures. 1-12 through 1-14)

The **FREESPOOL** arrangement allows mechanical disengagement of the drum gear from the remainder of the gear train. When the **FREESPOOL** joystick is shifted, the dental clutch engages or disengages the drum pinion and intermediate gear.

⚠ WARNING

When the joystick is moved to the FREESPOOL position, it will release the gear train and any load that may be on the wire rope. An uncontrolled release of the load may occur. Loss of the load can result in injury and damage.

The power joystick must be in the **BRAKE-ON** or **BRAKE-OFF** position to operate the **FREESPOOL** joystick. When the **FREESPOOL** joystick is moved to the **FREESPOOL** position, the sliding sleeve disengages the drum pinion gear from the intermediate gear. The gear train is disengaged from

the drum gear so that the wire rope can be pulled from the drum by hand. Only the drum and drum pinion gear rotate when the wire rope is pulled during **FREESPOOL** operation. The resistance to rotation by the drum during **FREESPOOL** is controlled by the preload on the bearings for the intermediate shaft.

If the **FREESPOOL** joystick cannot be moved to engage the gear train for power operation, apply a clutch to move the gear train a small amount. This action will align the splines in the dental clutch so that the intermediate gear can be engaged.

Bluetooth Diagnostics Adapter (optional)

General Description

The bluetooth adapter works with the ECM in the eControls system. It conveniently allows user to see live winch diagnostics data on either an iOS (IQANsync) or Android (IQANrun) device with the appropriate downloaded application. P/N (2317456)

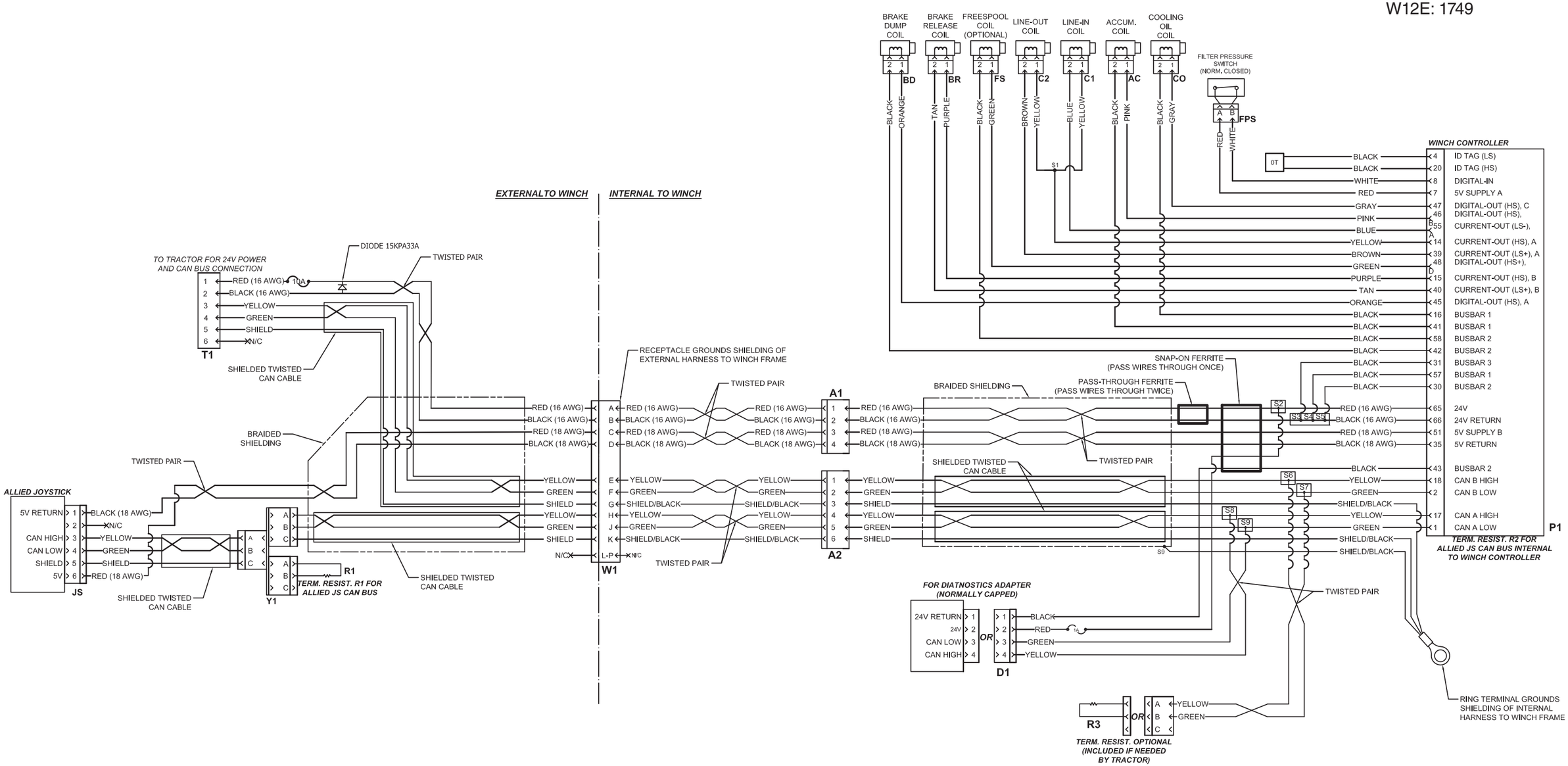
Figure 1-14 Bluetooth Adapter

SCHEMATIC: CURRENT eCONTROLS SYSTEM

USES HARNESSES 2317615, 2317616 &2317617

FIRST USED ON

W6GE: 2097, 2059 and later
W8LE: 3900
W12E: 1749

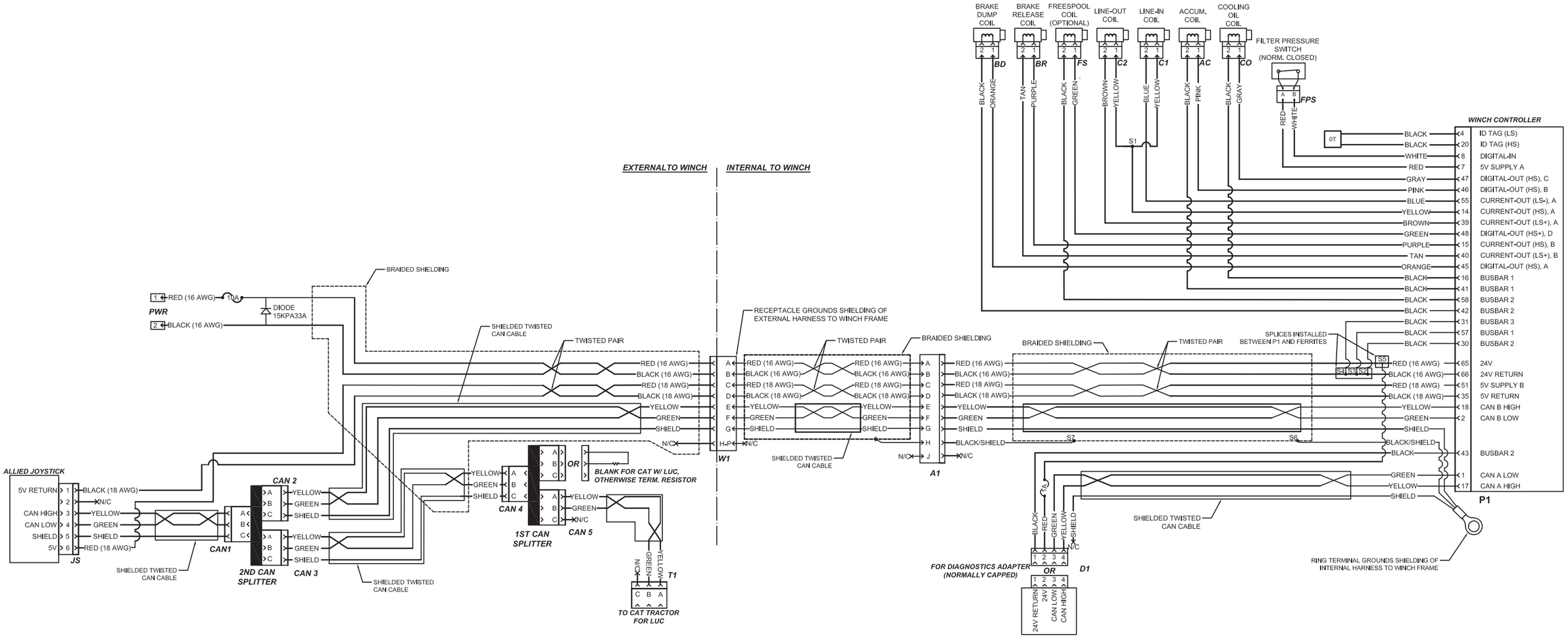


SCHEMATIC: PREVIOUS eCONTROLS SYSTEM (SHIPPED ON REBUILDS ONLY)

USED HARNESSES 2317435, 2317410, & 2317359

LAST USED ON

W6GE: 2058
W8LE: 3899
W12E: 1748



Troubleshooting

Joystick (LED)
Error Codes Descriptions

If one of the following error codes is detected, the red activation light on the joystick will start to blink. If there are errors important to winch safety, the winch will remain in the OFF state even when the switch is in the ON position.

⚠ WARNING

Don't use the machine if an error message or error code is activated.

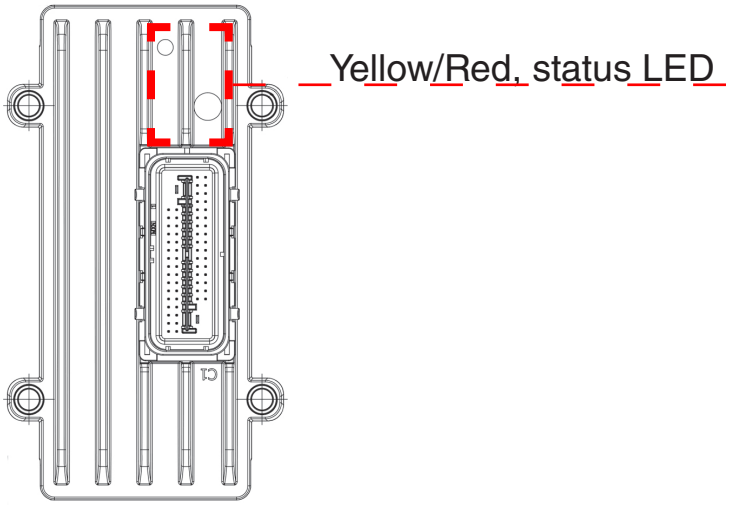
Pulse Timing Chart	
1/4 Second	
1/2 Second	
1 Second	
3 Second	

Function	Display
Winch On LED Off	
Winch Off LED On	
Winch Off and Error Detected +Error Code Below, Repeating	
Oil Filter Bypassing Cold oil, Plugged Filter	
Line-In Coil Fault Open or Short	
Line-Out Coil Fault Open or Short	
Brake Release Coil Fault Open or Short	
Accumulator Coil Fault Open or Short	
Cooling Oil Coil Fault Open or Short	
Brake Dump Coil Fault Open or Short	
Freespool Coil Fault Open or Short	
Joystick Fault Bad Joystick	
Low Battery. Voltage Fault Winch control module drops below 9VDC	
ECM High Temperature Fault Winch control module temperature above 85°C (185°F)	

eControl Module MC4x/XC4x

System Diagnostics

A yellow blinking LED on the module indicates a normal status, but when the LED is blinking red an error has been detected.



⚠ WARNING

Don’t use the machine if an error message or error code is activated.

If an error is detected, a message will be presented with a error code on module. There are cases that the module will either turn off or shut down the outputs, to increase safety.

LED indicator MC4x modes	
Status	Flash (yellow)
Normal operation	
Application not loaded	
No application available	
Waiting for restart	
Settings overflow	
Version mismatch	

eControl Module MC4x/XC4x (continued)

Error Status Codes			
Error code	Error	Primary Flash (red) Category	Secondary Flash (yellow) Description
1:1	Output		
1:2	Input		
1:3	VREF		
1:4	Expansion unit error		
2:1	Power supply		
2:2	Temperature		
3:1	CAN, no contact		
3:2	IdTAG error		
3:3	System mismatch		
3:4	CAN error (bus off)		
4:1a	Stopped, critical		
4:2b	Stopped, critical		
4:3c	Stopped, critical		

a. Followed by longer sequence of flashes, contact **Allied Systems Company**.
b. Followed by longer sequence of flashes, Possible causes include reverse feed on startup, critical under-voltage and critical temperature.
c. Followed by longer sequence of flashes, contact **Allied Systems Company**.

I/O

Red blinking code indicate an error is detected on either the input or output, usually meaning a wiring error.

Error code	Description
R1:1	Output error, (example: open load)
R1:2	Input error, (example: Voltage input low)
R1:3	VREF error, (example: sensor supply short to ground)
R1:4	Expansion module is reporting an error code on MC4 master

When identifying I/O errors, connect to the master module using IQANrun/IQANgo.

eControl Module MC4x/XC4x (continued)

Power or Temperature

Power supply or temperature warnings

Error code	Description
R2:1	Voltage supply too low on Module, low voltage on output may cause additional error codes
R2:2	Internal Module temperatures are too high

CAN

CAN bus system errors that start with three red blink codes

Error code	Description
R3:1	No contact with one or more CAN modules.
R3:2	IdTag error, check ADDR pins. MC4: missing IdTag or address not matching application. XC4: missing IdTag.
R3:3	System mismatch in mult-master system. Update all master modules to same version of project-file.
R3:4	CAN bus off of one of the buses on the module. The module will attempt to recover automatically

For further details on the No contact and CAN bus error, connect to the master module using IQANrun/ IQANgo

eControl Module MC4x/XC4x

Stopped, critical

Four red blinking codes states the controller internal diagnostic detects a critical error and stopped the application.

The blink codes are then followed by a longer sequence of flashes:

Example error code: 4R:2 1:1:1

Most internal diagnostic test are extremely unlikely to occur, but a few may be triggered by **external factor** error or because of an **application design**.

External Factors

Below is a list of codes that may be triggered by ***external factors***. They will start with **4 red, 2 yellow** then followed by 3 groups of flashes:

Error code	Description	Possible External Factor Triggers
R4:2:1:1:1	SSP (Safe Shutdown Path) diagnostic startup test failed.	Most likely caused by the outputs shorted to battery (reverse feed).
R4:2:1:1:3	I/O startup test failed.	Under-voltage is the possible cause
R4:2:1:1:4	AD Converter startup test failed	May indicate outputs shorted to battery.
R4:2:2:1:1	Critical over-temperature	
R4:2:2:1:3	Critical error on output diagnostics.	Possible causes include under-voltage

IQAN-G11 Adapter (LED)

Error Code Descriptions

If an error is detected, a message will be presented on LED.

⚠ WARNING

An error message could indicate that a hazardous situation exists. If precautions are not taken this could result in death, serious injury or major property damage.

LED IQAN-G11 modes:		
Mode Statuses		Flash (yellow)
Init	100 ms on 100 ms off	
Waiting	100 ms on 2900 ms off	
Connected	900 ms on 100 ms off	

Error Status Codes (yellow flash)			
Error code	Error	Primary Flash (red) Category	Secondary Flash (yellow) Description
3:1	CAN, no contact		
3:4	CAN error (bus off)		
4:1	error/OSE		
4:2	Internal error/G11		

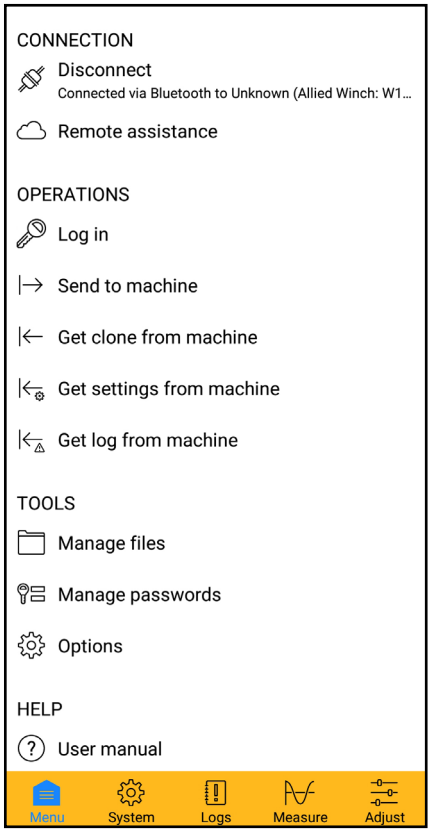
Notes

General (Android and iOS)

User interface

IQANgo (Android and iOS) is a mobile application defined as a slimmed down version of IQANrun. These are the key features that are included: system information, log management, measure, adjust and sending and receiving files.

IQANgo uses WiFi, Bluetooth or Internet in order to connect to the eControl system.



IQANgo user interface

IQANgo will show the main menu when initially started. Once it is connected to an eControl system the tab bar will show up at the bottom of the screen which offers access to these additional views:

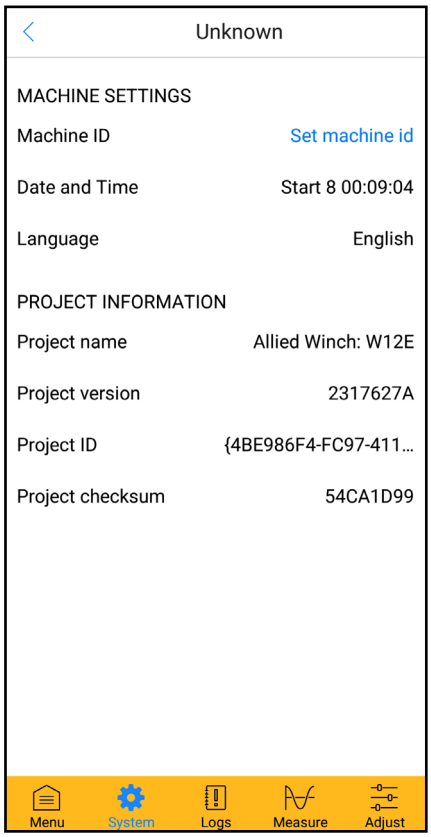
- System
- Logs
- Measure
- Adjust

Screen orientation

IQANgo supports both portrait and landscape mode.

Portrait mode

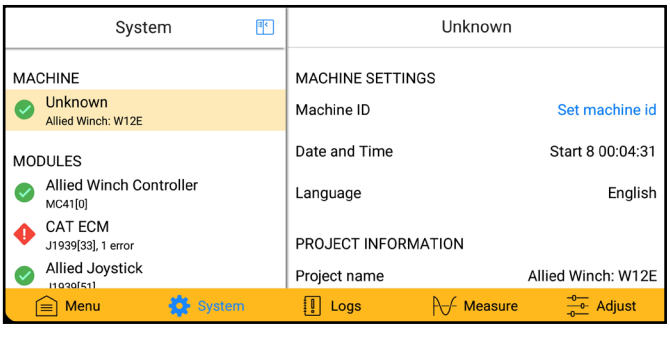
On portrait mode, the display only shows one pane at a time. When moving to a sub pane, the back button in the upper left corner will navigate the user back to the previous pane.



Sub pane with back button.

Landscape mode

In landscape mode, the screen is divided, showing both the master pane and the detail pane side-by-side. The master menu can be minimized by tapping the button in the upper right corner of the master pane. Click again to restore it.



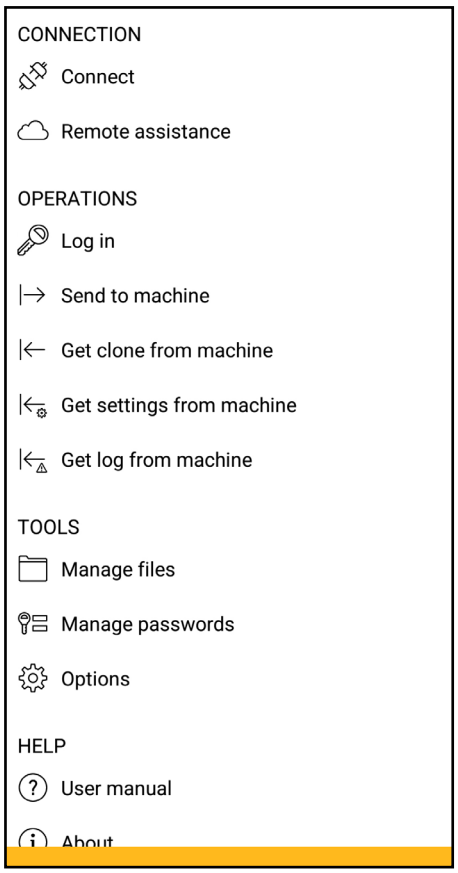
Master pane with detail pane side-by-side.

Menu

The main menu contains access to different operations and tools. The Menu tab is usable even when not connected to a system or if you are selecting from the bottom tool bar.

⚠ CAUTION

While the OPERATIONS menu options are available, they are for factory use only. Do not attempt to make adjustments to these options. Damage or reduced performance are possible if the factory settings are altered.



The main menu

Connection

- Connect/Disconnect: Click to connect to or disconnect from an eControl system. (See section Communication on page 3-6).
- Remote assistance: Allows remote connections between the eControl system and the IQANconnect server. (See section Remote assistance on page 3-7).

Operations (Factory Use Only)

- Log in: Connects to the system which allows access to protected components and operation.
- Log out: Disconnects from the connected system.
- Send to machine: Directs any project, clone or settings file to the connected system.
- Get clone from machine: Gains access to a clone file from the connected system.
- Get settings from machine: Transmits settings from the connected system.
- Get log from machine: Allows a choice of one of the data logs from the connected system.

Tools

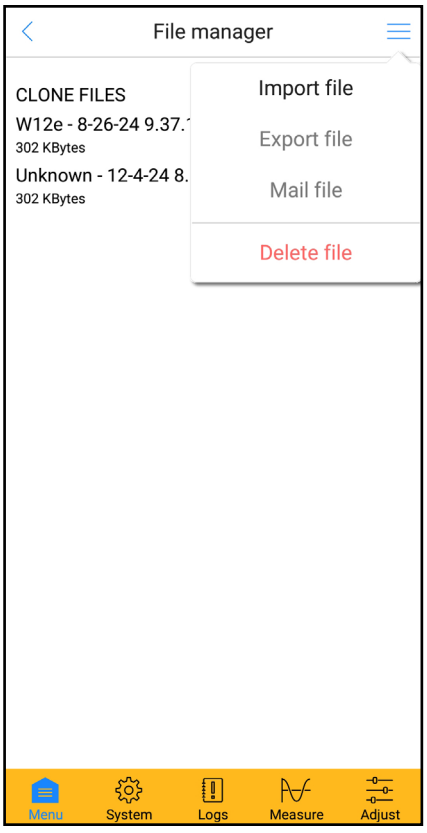
- Manage files: Opens the internal file manager. (See section Manage files).
- Options: Open User interface of IQANgo

Help

- User manual: Shows this document.
- About: Displays license and version information.

Manage files

Views the local files & by selecting one will allow you to either e-mail or delete the file.



File manager.

This function shows files stored locally on the device in the IQANgo folder.

Managing files on iOS

When using iOS devices, the folder can be opened via the iOS Files app. Folder location are as followed On My iPhone > IQANgo. Using the Files app the option is to either move or copy files to and from the IQANgo folder. Storing a file in the IQANgo folder will make it show up in IQANgo.

Managing files on Android

Using Android devices, the menu options are:

- Import file lets you import files from another folder or another app such as OneDrive.
- Export file, the selected file can be exported to the Downloads folder on the device.

Options

This section describes the options that concern the user interface of IQANgo.

NOTICE

Passwords are an option in the menu tools section. They are not established by the factory, and should not be used.

Passwords

Select whether passwords should always be saved or if IQANgo shall ask for save each time a password is entered.

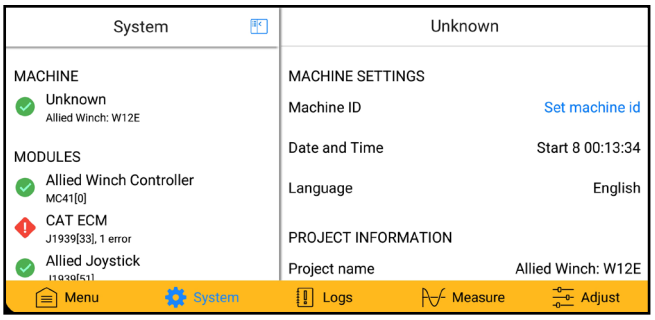
Disabled dialog boxes

Some message dialog boxes have options:

- Disable (never show the box again). By selecting that check box, it eliminates the box from showing that information or asked that question again.
- Enable a disabled dialog box, click the Show again button next to the dialog box in the list.

System

The system tab which is found at on the bottom bar is useful to quickly spot problems on a machine. It's an overview of all the modules in the system and their status.



The system tab.

Updates to the view are continuous and will immediately be able to view any new errors.

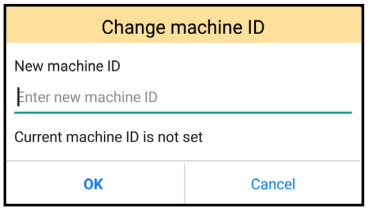
The menu representation starts with the system information at the top, then there is one item for each module in the system. Each module has a corresponding item which indicates a status and errors.

System information

The system information includes data such as project name, version and machine ID. It might also have project specific data. The system checks its integrity to see that the correct master modules are present and using compatible applications if more than one is found in the system. When errors occur during the check it will display as Error & will have further details.

Machine ID

The system information contains a link to change the machine ID in the connected system. Changing the machine ID should only be done once in a machine's life time, typically in production. The machine ID is a text of up to 25 characters. It should be a unique text that identifies each machine. Typically, the machine's chassis number or serial number is used. Logs, measures, settings and clone files are marked with the actual machine ID to make it possible for you to later identify which machine they belong to/originate from. The machine ID is also used to identify a machine when connecting to it remotely.



Change machine ID dialog.

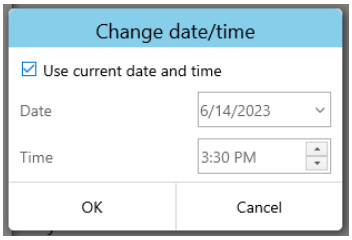
Click on the current machine ID to show a dialog that will let you change it. Enter the machine ID you want and press OK. The master module may require a restart before the new machine ID is in effect.

NOTICE

Some systems require a higher access level to allow machine ID changing. If that is the case, an error message is displayed. Log in as a different user with sufficient access rights and try again. (See section Login on page 3-2 for more information).

Date and time

Under the systems tab choose the current date/time to set or adjust time clock in the connected master.



Change date and time dialog.

Select either “Use current date and time” from your device’s clock or set date and time to set the eControl system clock.

NOTICE

Adjusting the Date and time is only available if there is at least one master module with a real time clock. Systems without a real time clock, will instead show the date/time item startup count and elapsed time since last the startup.

Language

In the connected master module under the machine settings the current language is displayed. To make a change select language to view a list of others available, then select the desired language from the list.

NOTICE

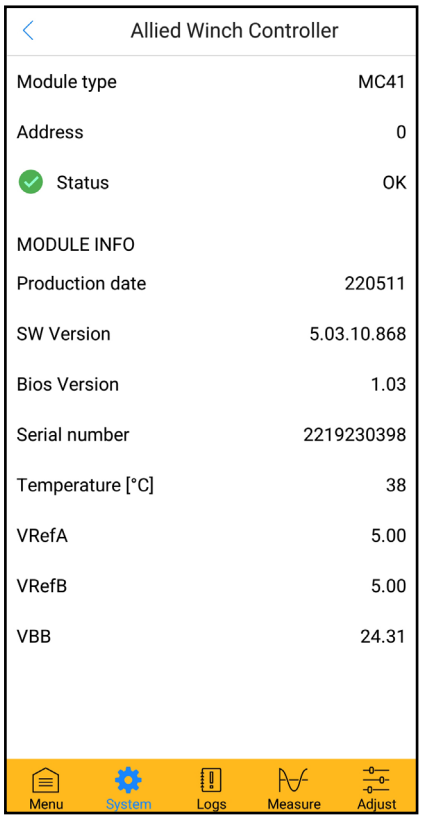
Depending on the actual project loaded, not all systems have multiple languages.

NOTICE

Whichever language is selected it will be used for both IQANgo and in the master module. Language will affect component names, such as measure groups, adjust groups, etc and the menu system in the master display.

Module information

By selecting a module to view further information is displayed. For example, it includes module type, address and production data. Active faults are listed together with measured value and a status of the corresponding channels. When a fault disappears, the channel is still measured, but the status will change to OK.



Module information

Updates are continuous, so for example this view is a great way to measure module temperature and supply voltage.

LED status

Master modules without display use an LED to indicate status. The error status with the LED can be read on the master module’s information page in IQANgo.

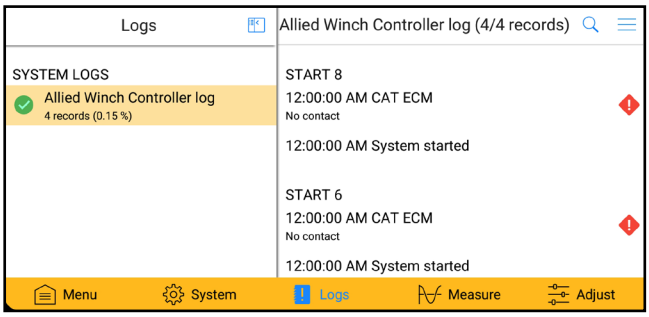
Examples:

- “R1:2” input error = one red flash followed by two yellow flashes.
- “Y1:2” application not loaded = consists of yellow flashes.

For the most common errors a clear text is also shown.

Logs

The Logs tab is used to view and manage logs in the connected eControl system.



The logs tab.

If some logs are missing from the list, you may need higher access rights. To gain access Log in as a different user with sufficient access rights and try again. See section Login on page 3-2 for additional information.

Each log shows a status indicating if it is full. Options for the full log would be to either stop logging (Log full, stopped) or start overwrite the oldest records (Log full, recycling).

View log

Select a log from the list to view its records. The newest log is retrieved from the connected master module and displayed. For additional records, click Get more records in the upper right menu or to view all records select Get all records. There is also a Refresh menu item which finds the newer records that may have been added since you entered this view.

A search button in the upper right corner next to the menu offers a way to filter out log records by entering a text.

Save

Choose Save in the upper right menu when you want to save all fetched log records to a file. The save file dialog box is shown.

These are the three file formats.

1. .irlx: IQANrun Log file. Use this format to be able to open it.
2. .xlsx: Microsoft Excel format. Saves all fetched log records in an Excel workbook. Opens the file in Microsoft Excel after it has been saved.
3. .csv: The Comma-Separated Values file format is a file type that stores tabular data. It is a delimited UTF8-encoded text file, which uses a semicolon to separate values.

Mail

Use this to mail the current log records to another user.

Add record

To add some text to a selected system log. Use the upper right menu & select Add record. Enter the text you want to add in the system log and click OK. There is a maximum of 250 characters.

The text record is added with the description External record and the text you entered as its value. It is stamped with current date and time.

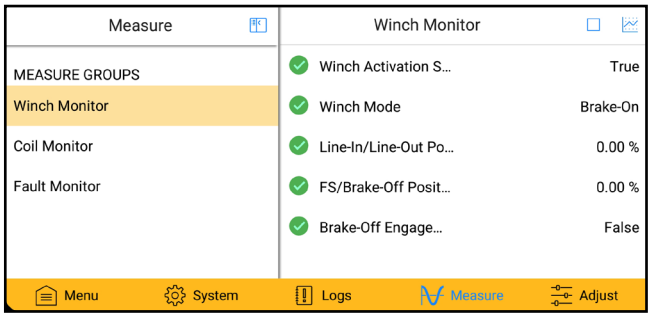
Clear log

In the upper right menu pick Clear log when you want to delete all records selected from the list. A confirmation dialog box will display. Click Yes to clear the log.

A higher access level is required for some logs to permit this operation. An error message will display. In that situation, Log in as a different user with sufficient access rights and try again. See section Login on page 3-2 for more information.

Measure

Using the measure tab gives you the option to measure one or more channels in real-time. Measurements can be done both numerically and graphically. It is not required to have a project file open to use this operation, the information used is obtained from the connected eControl system.



The measure tab.

Measure groups

A measure group contains one or more measure items. They provide a way of organizing all measure items in a project to give you a better overview. Select a measure group to see and measure its measure items.

If there are missing measure groups a higher access level is required. Log in as a different user with sufficient access rights and try again. See section Login on page 3-2 for more information.

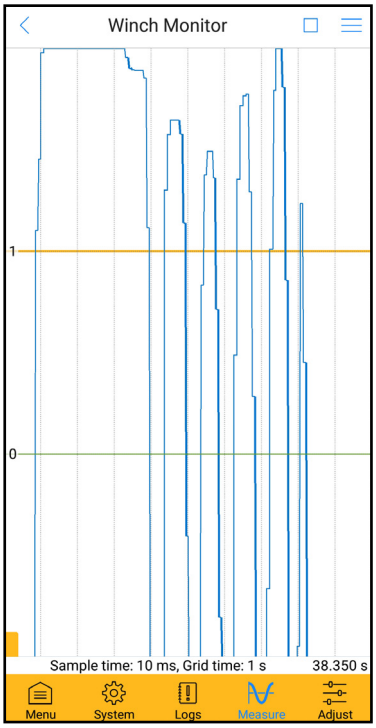
Start and stop

The start/stop button in the tool bar controls the start or stop of a recording.

Graph

In the upper right corner, the graph button switches to show a graphical measuring.

Viewing in landscape mode, the measure items are shown together with the graph view. Each item is color-coded to match its curve in the graph.



Graphical measurement

The graph also shows a colored representation of measured channel status at the bottom. This can be turned on or off using the menu in the upper right corner.

Save

To save your completed measurement to a file. Click Save in the upper right menu. A save file dialog box is shown.

There are three file formats available.

1. .irmx: IQANrun Measure file. Use this format to be able to open it with IQANrun to view it later.
2. .xlsx: Microsoft Excel format. Saves all measured values in an Excel workbook. Opens the file in Microsoft Excel after it has been saved.
3. .csv: The Comma-Separated Values file format is a file type that stores tabular data. It is a delimited UTF8-encoded text file, which uses a semicolon to separate values.

Panning

One finger is used in the X and/or Y direction to pan the graph.

Zooming

The pinch motion is used to zoom, moving two fingers in & out from each-other.

Select Zoom to Extent in the upper right menu, To return to the original view.

Scaling

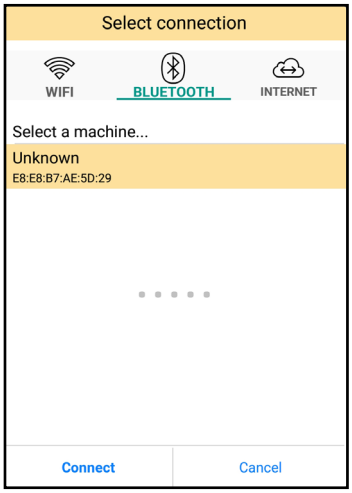
To manually scale a measure item, select it in the item list and then select Item properties in the upper right menu. Enter min and max values for the Y axis. There is also the option change the color of the measure item's curve.

Click OK to update the graph.

Communication

This chapter describes the three communication types available to the eControl system; WiFi, Bluetooth and Internet.

On the Menu tab select Connect to initiate a connection, then a connection dialog is displayed. Another option would be to initiate a connection by choosing an operation that requires a connection.



Connection dialog

Select the connection type tab appropriate for your system. The different types are explained in detail in the following sections.

WiFi/Ethernet

WiFi or Ethernet can be used to connect to your eControl system if it contains a master module with an Ethernet port. Your device and the master module must be on the same network and their IP addresses set up correctly. Read more about these setups in the IQANdesign user manual. The WiFi tab has two modes, Discover and Static IP. In discover mode all available modules on the local network are listed automatically. Select a module in the list and click Connect to start to communicate with that module. If you are not sure which module you should connect to, you can select a module in the list and click Identify. This will cause the screen of the selected module to flash.

If the module you want to connect to is located on another network than the one your computer is connected to, it may not turn up in discover mode. In this case you can try to add the IP address manually instead by switching to static IP mode and adding the IP address of your master to the list. You will find the IP address of a display master in the menu system of the master. Note that no public IP addresses will be accepted here.

IQANgo will remember which system you where connected to last time and try that system first next time.

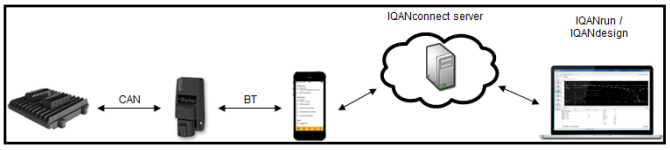
Bluetooth

If the eControl system is equipped with an eControl Bluetooth gateway it can be used to connect to the system from IQANgo. The Bluetooth tab will automatically scan and list all compatible Bluetooth gateway modules that are found nearby.

The first time IQANgo connects to an IQAN-G12 Bluetooth gateway, pairing is required. The IQAN-G11 does not require pairing.

Remote assistance

The IQANgo app, together with the IQAN-G11/G12, can connect the machine to Internet, making the eControl system available to remote support via the IQANconnect service.

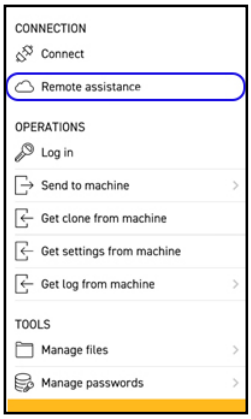


Remote assistance mode.

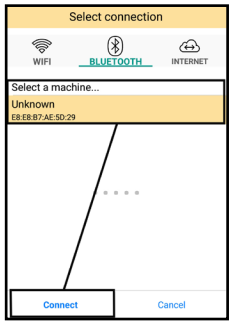
IQANgo user at the machine

Make sure Bluetooth is enabled on your device. Start IQANgo and follow these steps:

1. Select Remote assistance.

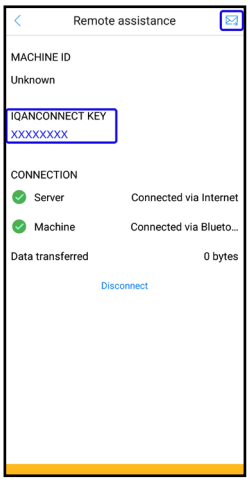


2. When the machine shows up, select it and tap Connect



3. The IQANconnect key is shown.

4. The IQANconnect key can be sent to the person who will connect.



5. Initiate remote assistance.

The IQANconnect key that is shown in the Remote assistance menu is unique to your phone. If you connect a different machine to Internet using the same phone, the same IQANconnect key will be used.

Remote user

The remote user connects with IQANrun, IQANgo or IQANdesign to the machine by selecting Internet as the connection interface and adding the IQANconnect key from the IQANgo user.

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