

Basic GL Setup Procedure

Disclaimer: This sheet is NOT a substitute for the Manual. This sheet when followed properly will verify basic operation of the GL400 and all Electric and Hydraulic Components associated with it. It is assumed the user knows how to navigate through the Setup Menus and is familiar with the basic operation of the GL400. Be careful to SAVE each parameter after changing it. This is only used for the purposes of testing a vehicle. It does not substitute for a true calibration.

VALUES IN BOLD = Main menu Items
VALUES IN BLUE = Sub Menu Items
VALUES IN MAGENTA = Setup Variables
Text that is highlighted = GL400-6 Only!

EQUIPMENT MENU

SPEED INPUT TYPE Please choose a setting from the listing below. When attaching the Speed Input wire on the GL Harness to the vehicle chassis wiring system information on Speed Signal type and location to connect must come from the vehicle chassis dealer.

CTI VRM: Choose Magneto type sensor output for alternating current or AC type signals (no electronics involved). Should use a shielded signal wire for this application!

CTI MECH: for standard mechanical speedometer with CT supplied mechanically driven hall-effect pulse generator. This signal is normally a pulsed on/off 12-volt Direct Current signal.

W/A ELECTRIC: for Allison "World" transmissions or speed sensors with a low voltage output. Typically electronic or computer derived type signals. This signal is normally a pulsed on/off 5-volt Direct Current signal.

FEEDER CONTROL (Sensor) Is there a sensor installed **YES/NO?** DEFAULT = **YES**

SPINNER CONTROL (Sensor) Is there a sensor installed **YES/NO?** DEFAULT = **YES**

LIQUID CONTROL or **PREWET CONTROL** if using a (GL400-6.X) Is there a Liquid OR Pre-Wet system installed? The 3 most common settings are listed below.

Please reference the manual for Electric Proportional. DEFAULT setting = NONE

NONE: Select if no pre-wet system will be used with the GL400

ON/OFF: Output of GL400 is used to control a ON/OFF Pre-Wet; Typically an electric motor driven pump or ON/OFF type solenoid control valve. Output current should not exceed 3 amps. If higher current requirements are needed a relay must be used.

HYDRAULIC: Selecting this setting requires the use of a Flow Meter or compatible 12-volt open collector current sync device capable of generating a feedback signal proportionate to the material output. The feedback signal will be used by the GL400 to calculate and control the speed of the hydraulically driven liquid pump.

Settings below for all revisions of (GL400-6.X) only!

HYDRAULIC FLOWMETER: (GL400-6.X) revisions ONLY) Selecting this setting requires the use of a Flow Meter or compatible 12-volt open collector current sync device capable of generating a feedback signal proportionate to the material output. Use with hydraulically driven proportional Pre-wet system using either the Auger return oil or by adding an additional valve section in the main valve stack to control the liquid pump. Also used if running an Anti-Ice system utilizing a dedicated valve or valve section in the main valve stack to control the liquid pump (Running Anti-Ice in this manner is only possible if ANTI-ICE CONTROL type is NONE).

Note on HYDRAULIC FLOWMETER: Anti-Ice can be operated on a GL400-6 as it would be on a GL400-5.6 as long as Anti-Ice Control Type is NONE. The Flow Meter PPG must be entered as detailed under the GL400-6 LIQUID SETTINGS section below. If using a GL400-6 calibrating an Anti-Ice system please reference the Anti-Ice portion of the full GL400 Manual part# SG07100077

HYDRAULIC OPEN LOOP: (GL400-6.X revisions ONLY) Select if there will be NO flow meter used in the system. Use with hydraulically driven proportional pre-wet system using either the Auger return oil or by adding an additional valve section in the main valve stack to control the liquid pump. Also used if running an Anti-Ice system utilizing a dedicated valve or valve section in the main valve stack to control the liquid pump (Running Anti-Ice in this manner is only possible if Anti-Ice Control Type is NONE).

EQUIPMENT MENU continued: For all remaining parameters, please verify the following DEFAULT settings are as shown here:

VALVE FREQUENCY = 180hz, **VALVE OPEN REFERENCE** = 2352, **TWO-SPEED AXLE**= Ratio 1.00, **GATE CONTROL**= Height Adjust **NO**, and **TEST SPEED**= 0 See notes below.

Note on VALVE FREQUENCY: If the valve frequency is unknown for a particular valve usually the default setting above is adequate to check operation. It is however always recommended to consult your dealer or call the manufacturer for the proper frequency for long-term operation.

Note on VALVE OPEN REFERENCE: If valve open (e.g. *Spinner Valve Open*) errors are prevalent while in *Operating Mode* even though the hydraulics operate normally. It may be necessary to increase the setup value: *<Valve Open Reference>*, until the error cancels out. Increasing the value: *<Valve Open Reference>*, makes the GL less sensitive to small variances in resistance within the circuits to the valve coils. It is recommended to increase this value in 200 - 300 unit increments. The range is 0 – 9999. The above setting **ONLY** effects the Feeder and Spinner valve coil circuits.

CALIBRATION MENU

All **Minimum** and **Maximum Trim** values represent *percentage of valve drive* with *<1000>* equal to 100.0%.

FEEDER DRIVE

MINIMUM TRIM: Set and save the *<Minimum Trim 0 - 1000>* when FEEDER motor is operating at its lowest speed. Proper adjustment is verified by receiving 50 to 300 Pulses/Minute from the Feeder sensor displayed on the lower right-hand portion of the screen.

MAXIMUM TRIM: With the engine running at 1000 to 1200 RPM increase the *<Maximum Trim 0 - 1000>* to the point when the feeder motor is at maximum speed (RPM). Finding maximum speed is made easy by utilizing the Pulses/Minute sensor feedback on the lower right-hand portion of the screen. For open loop systems ideally a Hand-held tachometer should be coupled directly on the motor output shaft. This gives positive feedback when maximum FEEDER speed is achieved. If this is not possible it's acceptable to visually get it as close as possible.

For all remaining parameters in the FEEDER DRIVE MENU please verify the following settings are as shown here:

START PERCENT= 25, **CONTROL VALUES** = .200 (LBS/PULSE), **CONTROL VALUES** = (PULSES/MINUTE) this value should match what was seen while setting MAXIMUM TRIM.

SPINNER DRIVE

MINIMUM TRIM: Set and save the *<Minimum Trim 0 - 1000>* when the Spinner is rotating at its lowest speed.

MAXIMUM TRIM: With the truck engine running between 1000 to 1200 RPM set and save the *<Maximum Trim 0 - 1000>* so that the Spinner is rotating at an estimated speed that would be adequate to cover maximum Lane width requirements. If a sensor is installed on the spinner motor, check for feedback on the lower right-hand portion of the screen.

SPEED SENSE

MATCH/ADJUST: It is necessary to calibrate the MPH signal input into the GL400. Block the vehicle's rear wheels safely off the ground or take the vehicle for a Road Test with someone else driving so that you can safely perform the adjustment. With the vehicle moving at a steady speed: (e.g. 25 MPH); Using the Adjust +/- switch change the *<Match/Adjust>* (Range = 1 to 10000) until the Vehicle speed displayed on the GL400 matches that of the vehicle speedometer.

SENSITIVITY: (Used only when **CTI VRM** is selected under EQUIPMENT menu) The *<sensitivity>* adjustment range is *<0 to 31>*. The *<sensitivity>* adjustment is used to filter out electrical noise that causes erroneous MPH signals triggering unintentional spreader operation. To have the proper calibration the *sensitivity* adjustment should be set as high as possible without causing loss of MPH display at low vehicle speeds resulting in spreader output interruption. The lower the *sensitivity adjustment* the more sensitive the control is to the speedometer signal and to electrical noise.

LIQUID SETTINGS also called **PRE-WET CONTROL** on a GL400-6.X

FLOW CAL FACTOR: For ALL GL's except all GL400-6.X, perform the following: The GL **must use a Factor of <pulses Per U.S. gallon>** from a flow meter or motor sensor. For Hydraulic motor driven Pre-Wet, use the following formula: (1 / pulses per U.S. gallon) x 100,000. Where *pulses per U.S. gallon* is the value for the flow meter given by the manufacturer. Usually this is labeled as the K-factor on the actual flow meter. Example: 1 / K-Factor of 1200 x 100000 = 83.

Settings below for all revisions of GL400-6.X only!

FLOWMETER PPG: The K-factor value or *<Pulses Per U.S. Gallon 0 - 10000>* should be **entered directly** into the GL. When Metric is used the value is still *pulses per U.S. gallon*. If converting from liters to U.S. gallons use the following formula: 1 liter = 0.2641721 gallon [US, liquid].

MAXIMUM GPM: When running a Hydraulic Open loop Pre-Wet system set *<maximum output GPM>* to a value between **0.0 to 25.0**. The *<maximum output GPM>* value is dependent upon your pump capacity and nozzle size. When Metric is used the value is still *<maximum output GPM U.S.>* If converting from liters to U.S. gallons use the following formula: 1 liter = 0.2641721 gallon [US, liquid]

VALVE FREQUENCY: Used for Hydraulic, Hydraulic Flow-meter or Hydraulic Open Loop. Enter the *<PWM frequency>* recommended by the hydraulic valve manufacturer. Range is *<30 to 285>* hertz). Consult your dealer for the correct frequency if it is unknown. (Example: Rexroth = *<180>* hertz.)

MINIMUM TRIM: Set and save the *<Minimum trim 0 - 1000>* so the pump is running, but at a low rate. There must be adequate flow to open nozzle check valve(s) if installed or liquid sensor faults will occur at low flows. Proper adjustment is verified by receiving 80 to 150 Pulses/Minute displayed on the lower right-hand portion of the screen. For Hydraulic Open Loop systems, (GL400-6 only) having someone in back watching flow and listening for the pump's minimum speed while another person adjusts the trim seems to work well to insure it's close as possible.

MAXIMUM TRIM: With the engine running at 1500 to 1800 RPM adjust the *<Maximum Trim 0 - 1000>* exactly when the liquid pump reaches maximum flow. While adjusting trims on a Hydraulic Flow-meter system the GL displays the Pulses/Min from the flow-meter in the lower right corner of the display. This can be used like a tachometer to find the maximum system flow. For Hydraulic Open Loop systems having someone in back watching flow and listening for the pump's maximum speed while another person adjusts the trim seems to work well to insure it's close as possible.

START PERCENT: Set Start Percent to 25.

ANTI-ICE CONTROL GL400-6.X only!

If using a GL400-6 calibrating an Anti-Ice system please reference the Anti-Ice portion of the full GL400 Manual part# SG07100077

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