Instruction Manual For
Thermocouple Gauge
GTC-365

Myers Vacuum
1155 Myers Lane
Kittanning, PA 16201
Phone: 724-545-8331
Fax: 724-545-8332

1.0 INTRODUCTION

The GTC -365 is a portable, battery-powered thermocouple vacuum gauge. It is designed to work with either the GTC -036 or GTC -004 sensing tubes. Separate scales are provided on the pressure meter to accommodate either tube. The GTC- 036 tube is supplied with the GTC-365 as standard equipment. The older type GTC -004 tube may be used with no changes required to the gauge control unit. A standard 1.5V alkaline battery is included. With the use of a panel mounting kit, the GTC-365 may be mounted in a control cabinet, panel or bulkhead.

The GTC -065 battery charger kit is an optional accessory which consists of a 120- volt AC charger and a rechargeable (nicad type) D size battery. The use of this kit eliminates the need for frequent battery replacement. The gauge can be operated while the charger is operating. Further information about the charger accessory appears in Section 5.

1.2 Operating Principle

The thermocouple type vacuum gauge measures pressure as a function of the heat loss from the filament of the sensing tube by means of thermal conduction to the gas in the vacuum system. The GTC-365 Gauge uses battery current to heat the filament to an adjustable set point. The unit has two modes of operation. In the Read Pressure mode, the meter is connected across the output of the thermocouple in the sensing tube and indicates the voltage or potential difference across the thermocouple on a scale calibrated in units of pressure. In the CAL. mode, the meter is connected across a precision resistor in the heater circuit and indicates the voltage drop across this resistor as a measure of heater current. Calibration is factory set, and should not require adjustment in normal operation.

1.3 Specifications:

Power Supply:	1.5 Volt "D" Cell Alkaline Battery Nicad rechargeable battery optional
Pressure Range:	0- 5000 milliTorr (with GTC -036 sensor tube) 0 -1000 milliTorr (with optional GTC-004 sensor tube)
Battery Life:	35 hours with GTC -036 sensor tube. 230 hours with optional GTC -004 sensor tube
Sensing Tube:	GTC -036 (Standard) GTC -004 (Optional)
Gauge Unit Size: Length:	6-5/8"
	Height: 5-3/4"
	Depth: 4"
	Weight: 3 pounds

2.0 INSTALLATION

2.1 Unpacking

Unpack and inspect the shipment for damage or shortage. Check to see if the following items are enclosed:

GTC -365 Thermocouple Gauge control unit
GTC -036 Thermocouple sensing tube
Tube Cable 10 feet long with octal plugs
1 D cell 1.5 volt Alkaline Battery

2.2 Installing the Pressure Sensing Tube

See Instruction Manual #9- 47, Type GTC -036 Thermocouple Tube.

2.3 Battery

Install the battery in its compartment. Make note of the polarity and position of the battery before installation. Check to see that all connections to the battery terminals are good and that the battery connecting wires are secure.

3.0 OPERATION

To read pressure, proceed as follows:

3.1 Note the type of sensing tube being used (GTC -036 or GTC -004). Set the selector switch on the Gauge front panel to the CAL. position (right for the GTC -036 sensing tube, or left for the optional GTC -004 sensing tube).

3.2 Rotate the CURRENT ADJUST knob to bring the pressure meter to exactly zero (full scale). If the meter cannot be brought up to full scale, the battery is probably low and needs replacement or recharging. If the meter reads off -scale and cannot be brought down, the battery voltage may be above normal. Allowing the gauge unit to remain on for a few minutes should correct this condition.

NOTE: If the selector switch is in the wrong position for the type of sensing tube in use, it will be impossible to properly adjust the current.

If the gauge has not previously been calibrated for use with the optional GTC -004 sensing tube, see Section 4.

3.3 Rotate the selector switch to the READ PRESS. Position and read the pressure on the lower scale with the 036 sensing tube or on the upper scale with 004 sensing tube.

3.4 For accurate results, check the heater current using the procedure in Step 3.2 after each pressure reading. This is particularly important if the pressure has changed since the previous reading.

3.5 For maximum battery life, switch off the gauge unit when pressure readings are not required.

4.0 CALIBRATION OF THE GAUGE CONTROL

If cleaning the sensing tube does not restore the gauge unit to proper operating condition, a new GTC -036 sensing tube should be installed. The tubes are interchangeable and normally do not require calibration.

If, after installing a new tube, it appears re-calibration is necessary, proceed as follows:

4.1 Locate the two-meter calibration potentiometers through the openings in the gauge unit back panel.

4. 2 Set the Selector Switch to READ PRESSURE and pump the system down to less than 1 millitorr. If the gauge does not indicate zero pressure, adjust the CURRENT ADJUST knob until the meter does read zero pressure. Then move the selector switch to CAL. 036 and adjust the CAL. 036 potentiometer to provide exactly full scale meter deflection.

4.3 When installing a new GTC -004 sensing tube, or after cleaning an existing tube, the CAL. 004 potentiometer will need readjustment to bring the Pressure meter into calibration. The procedure for adjusting the GTC -004 sensing tube is similar to that described in Section 4.2.

5.0 OPTIONAL ACCESSORIES

5. 1 Charger Kit Type GTC -065

The charger kit consists of a step-down transformer with low voltage rectifier circuit, and a rechargeable NiCad battery.

5.1.1 Specifications

Power Input: 120VAC50/60Hz.
Charging Rate: Variable to 120ma. Maximum
Battery Type: D size nicad cell

Recharge Time: with gauge off:	16 hours
with gauge on:	20 hours (GTC-004 tube)
	100 hours (GTC -036 tube)
Approximate Operating Time:	70 hours (GTC -004 tube)
	14 hours (GTC -036 tube)

5.1.2 Operation

1. Remove the battery from its compartment and replace it with the rechargeable battery. Note the polarity when installing the new battery. If polarity is wrong, the meter will read backward in the CAL. position, and the charger unit could be damaged.

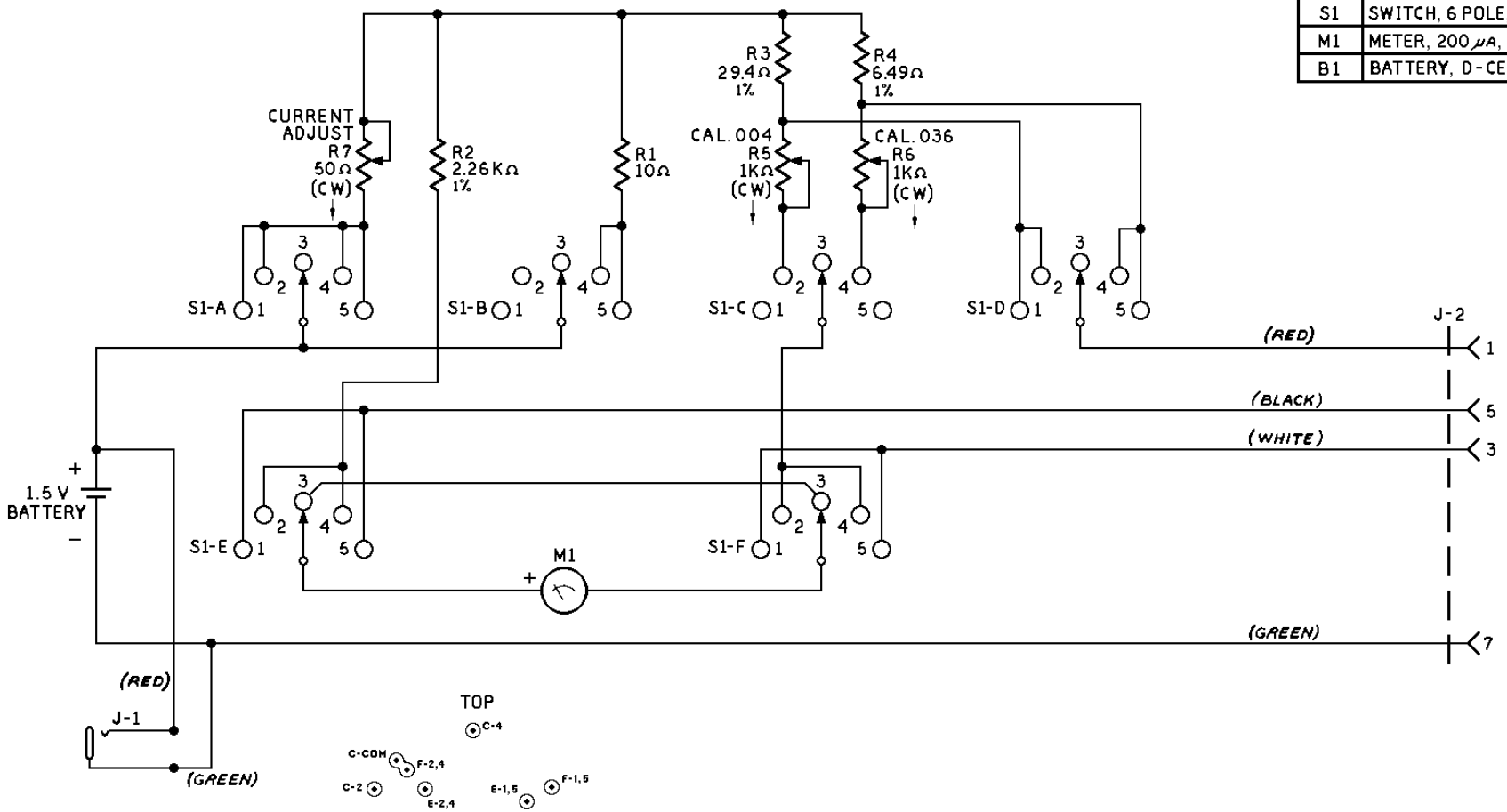
2. The battery may require charging when first installed. Plug the charger cable into the gauge receptacle on the back panel. Plug the charger line cord into a suitable 120 volt, AC 50/60 Hz. power source. Approximately 16 hours of charging are required to charge a fully discharged battery.

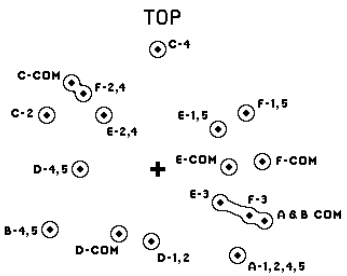
3. For best battery life, the battery should never be fully discharged. When the CURRENT ADJUST knob on the gauge must be turned fully clockwise to adjust the thermocouple heater current, the battery should be recharged.

6.0 RECOMMENDED SPARE PARTS & ACCESSORIES

Part Description	Part Number
Electrical Components	See Schematic C-5507934
Gauge Sensing Tube, GTC-036 (standard)	5504358
Gauge Sensing tube, GTC-004 (optional)	64797
Cable for Sensing Tube	62214-7
Battery, Alkaline Dry Cell	63383
Charger Kit, Type GTC-065	5508013
Battery, NiCad	5508013
Quick Connect Vacuum Fittings, Type CGE (less bushing)	61083
Bushing only (rubber) For CGB Fitting	61081-2
Quick Connect Vacuum Fitting, Type AC-01 (Brass)	268891-1
Quick Connect Vacuum Fitting, Type AC-005 (Stainless Steel)	268891-5
Vacuum Grease, Celvacene Medium (4 oz.)	269352-11
Leak Sealant, Celvacene Silicone - Brush Bottle	271375
Panel Mounting Kit, Type GTC-066	5508169

SYMBOL	DESCRIPTION	PART NO.	QTY.
R1	RESISTOR, 10Ω 5%	7138-1005	1
R2	RESISTOR, 2.26KΩ 1%	277751-40	1
R3	RESISTOR, 29.4Ω 1%	277751-41	1
R4	RESISTOR, 6.49Ω 1%	260215-42	1
R5/R6	POTENTIOMETER, 1KΩ	64008-6	2
R7	POTENTIOMETER, 50Ω	5507969-1	1
J-1	JACK, ¼"	267272	1
J-2	JACK, OCTAL (FEMALE)	277772	1
S1	SWITCH, 6 POLE, 5 POS.	5507968	1
M1	METER, 200μA, 55Ω	5507943	1
B1	BATTERY, D-CELL	63383	1





S1 CONTACT LAYOUT
FRONT (WIRING) SIDE

REV.	DESCRIPTION	BY	DATE
A	ADDED S1 LAYOUT & PART LIST	A.R.H.	2-21-74

TOLERANCE UNLESS OTHERWISE SPECIFIED
2 PLACE DECIMAL ± —
3 PLACE DECIMAL ± —
ANGLES ± —
BREAK SHARP CORNERS .015 MAX.
MACHINE SURFACES √ MAX.

MYERS VACUUM
DRAWN 9-20-73 CHECKED APPROVED 9-28-73
MATERIAL —
FINISH —

GTC-365
C-5507930 NEXT ASSEMBLY

SCHEMATIC - ELECTRICAL GTC-365
SCALE — C-5507934 REV. A

C-5507934 REV. A