

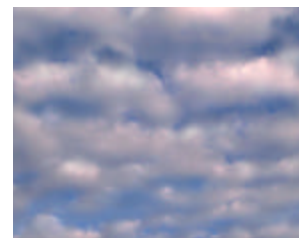
MICON 550L

ELECTRONIC REGISTER

OPERATION AND MAINTENANCE GUIDE

Kraus Group Inc.

An RNG Company



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1.0 IMPORTANT NOTICES

All wiring must be installed in accordance with National and local electrical codes.



WARNING

Substitution of components may impair intrinsic safety.

La substitution de composants peut compromettre la sécurité intrinsèque.



AVERTISSEMENT

When this unit is used in retail trade in Canada, Measurement Canada, an agency of Industry Canada, must be notified of the installation or service of this unit. This unit is subject to inspection upon installation and at such other times as the regulations may state.



ATTENTION

When ATC™ (automatic temperature compensation) is used, a thermal well must be provided. In addition to the thermal well and probe fitting, new installations will require two BC-256 labels reading "CORRECTED TO 15°C". These labels must be attached to each face plate of the dispenser and be visible to the customer. These labels are provided with the MICON 550L, and additional labels are available upon request.

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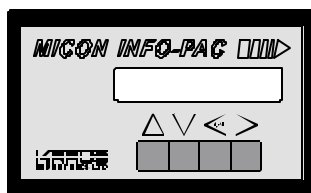
2.0 PRE-INSTALLATION CHECK

The MICON 550L is a computerized pumphead designed for use with liquid fuel (e.g., diesel, propane, butane) dispensers.

After carefully unpacking the MICON 550L, inspect for shipping damage. Refer to the options label(s) on the MICON 550L shipping box(es) to ensure the MICON 550L is properly configured for the intended application.

1. The MICON 550L digital display can be manually triggered to display configuration event counter data in the money display, model number in the volume display, and software version number in the price display, as shown in Figure 3. To do this:
 - ™ Flip the handle switch rapidly ON, then OFF. The display will indicate as shown in Figure 1.
 - ™ The event counter in the money display indicates the number of times the settings have been changed with the INFO-PAC. The INFO-PAC is a hand-held, self-contained battery powered unit designed to monitor and program MICON electronic pumpheads.

Figure 1 – INFO-PAC AND CONFIGURATION EVENT COUNTERS ON THE MICON 550L



INFO-PAC

INFO-PAC model M500L is designed to configure MICON 550L pump computer heads used to control flow of liquid fuel product from dispensers.

The INFO-PAC is a **transmitter** and **receiver**. Programmable pumphead features can be set up in the INFO-PAC memory, then transmitted to MICON heads. The INFO-PAC also receives and displays features already programmed to MICON pumpheads.



MICON 550L Display

Software version

Revision Number



MICON 550L Display

Configuration event counter in **money display**.

Indicates number of times the settings have been changed with the INFO-PAC.

Indicates the number of times the calibration factor has been changed.

Software version number in **price display**

2. Figure 1 indicates the event counter in the MICON 550L money display is set to 0001, which means the pumphead has been programmed once already using the INFO-PAC. To check the current configuration of your MICON 550L, use the INFO-PAC *receive* function, described in the **INFO-PAC Programming of MICON 550L Pumpheads** manual, and outlined in steps a) to d) below:

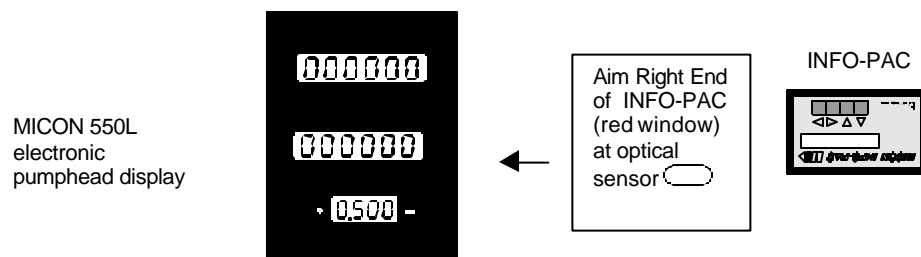
The **RX MICON** setting on the INFO-PAC is designed to receive MICON 550L settings from pumpheads, which have already been programmed.

To receive information from the MICON 550L:

- a) Turn handle off.
- b) Turn INFO-PAC ON by pressing left arrow key. Using up or down arrow key, scroll to INFO-PAC RX MICON option. Set RX MICON ON by pressing left or right pointing arrow key.
- c) Take INFO-PAC and go to the front display of the MICON 550L electronic pumphead. Locate optical sensor (oval hole) at right of price display on MICON 550L.

Aim INFO-PAC receiver/transmitter (located behind red tinted filter at centre edge of INFO-PAC) at MICON 550L optical sensor.

FIGURE 2 – RECEIVING DATA FROM MICON 550L



Red LED (light emitting diode) to left of MICON 550L price display flashes as INFO-PAC receives data from MICON 550L.

- d) When the INFO-PAC has received a copy of the MICON 550L set-up information correctly, INFO-PAC display will show "Received Micon". To view each setting, scroll with the up or down arrow key.
3. Enter a price. See section 6.2.1 – Setting Prices for a description of the procedure. Totalizer readings are described in section 6.2.2 - Reading Totalizers.

Setting prices and reading totalizers on 2-Tier dispensers are described in sections 6.2.

If any faults are detected during this preliminary check, consult your factory or service representative.

3.0 PHYSICAL MOUNTING CONSIDERATIONS

3.1. HANDLE SWITCH COUPLING

1. The handle switch coupling on the side of the MICON 550L must be connected to the dispenser handle. In most installations, the dispenser handle can be coupled directly to the MICON 550L, without use of an adaptor kit. The MICON 550L handle switch can be turned to the **ON** position by rotating the actuator shaft 90 degrees in either a clockwise or counterclockwise direction. The direction of rotation is dependent upon the position of the dispenser handle in relation to the coupler.
2. If desired, a normally open handle switch can be connected to the two intrinsically safe quick-connects.
3. The customer lead exit, located on the side of the explosion-proof housing, must be connected to a suitable junction box with rigid conduit (North American only). A seal fitting must be installed in the conduit if it passes from a Class I div. 1 location to a div. 2 location.
4. In Canada, Measurement Canada, an agency of Industry Canada, requires that the Micon 550L have control of product flow so that the MICON 550L can stop product flow if a measurement fault is detected. Some dispensers in submersible systems incorporate a mechanically controlled valve which is not compatible with the MICON 550L installation. In such a case an electrically controlled valve would have to be installed.

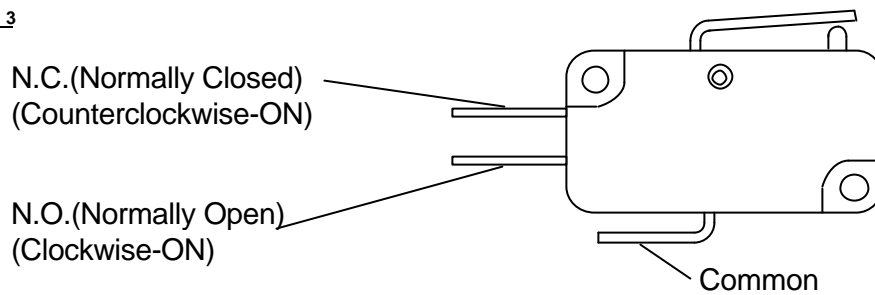
3.2 HANDLE SHAFT ACTUATION

The MICON 550L handle switch may be switched **ON** by rotating the actuator shaft 90 degrees in either direction. As shipped from the factory, a clockwise rotation of the coupler assembly (as viewed from the coupler side) is required to switch the pumphead **ON**.

If the installation requires a counterclockwise rotation  to turn the head **ON**, see Figure 3 and complete the following step:

- a) Move the quick-connect on the "N.O." terminal of the switch to the "N.C." terminal.

FIGURE 3



4.0 CUSTOMER HARNESS LEAD ELECTRICAL CONNECTIONS

4.1 IMPORTANT WARNINGS

IMPORTANT!

When performing installation or maintenance work of any kind, including servicing MICON 500L electronic pumphead main boards or using the INFO-PAC to program pumpheads, it is the responsibility of the service person performing the work to ensure:

1. All power to MICON pumphead(s) is turned OFF.
2. All supply of gas to dispenser(s) being serviced is shut OFF.
3. The customer lead exit, located on the top of the explosion-proof housing, must be properly sealed when exiting into a Division 2 area (North American only). A suitable batting material must first be used to prevent the sealing compound from entering the housing. The seal must be a minimum depth of 5/8 inches or the inside diameter of the opening, whichever is the greater.
4. All wiring must be installed in accordance with national and/or local electrical codes.
5. All unused wires must be capped or otherwise securely terminated.
6. This unit must be connected to an appropriate power source as specified by the rating nameplate.
7. Independent motor and solenoid power must not exceed the ratings specified on the rating nameplate.
8. This unit must be grounded by means of all ground wires provided.
9. When this unit is used in retail trade in Canada, *Measurement Canada*, an agency of Industry Canada, must be notified of the installation or servicing of this unit. This unit is subject to inspection upon installation and at such other times as the regulations may state.
10. When the ATC™ is used, a thermal well must be provided. In addition to the thermal well and probe fitting, new installations will require two BC-256 labels reading "CORRECTED TO 15°C". These labels must be attached to each faceplate of the dispenser and be visible to the customer. These labels are supplied with the MICON 550L. Additional BC-256 labels are available upon request.



WARNING

Substitution of components may impair intrinsic safety.

La substitution de composants peut compromettre la sécurité intrinsèque.



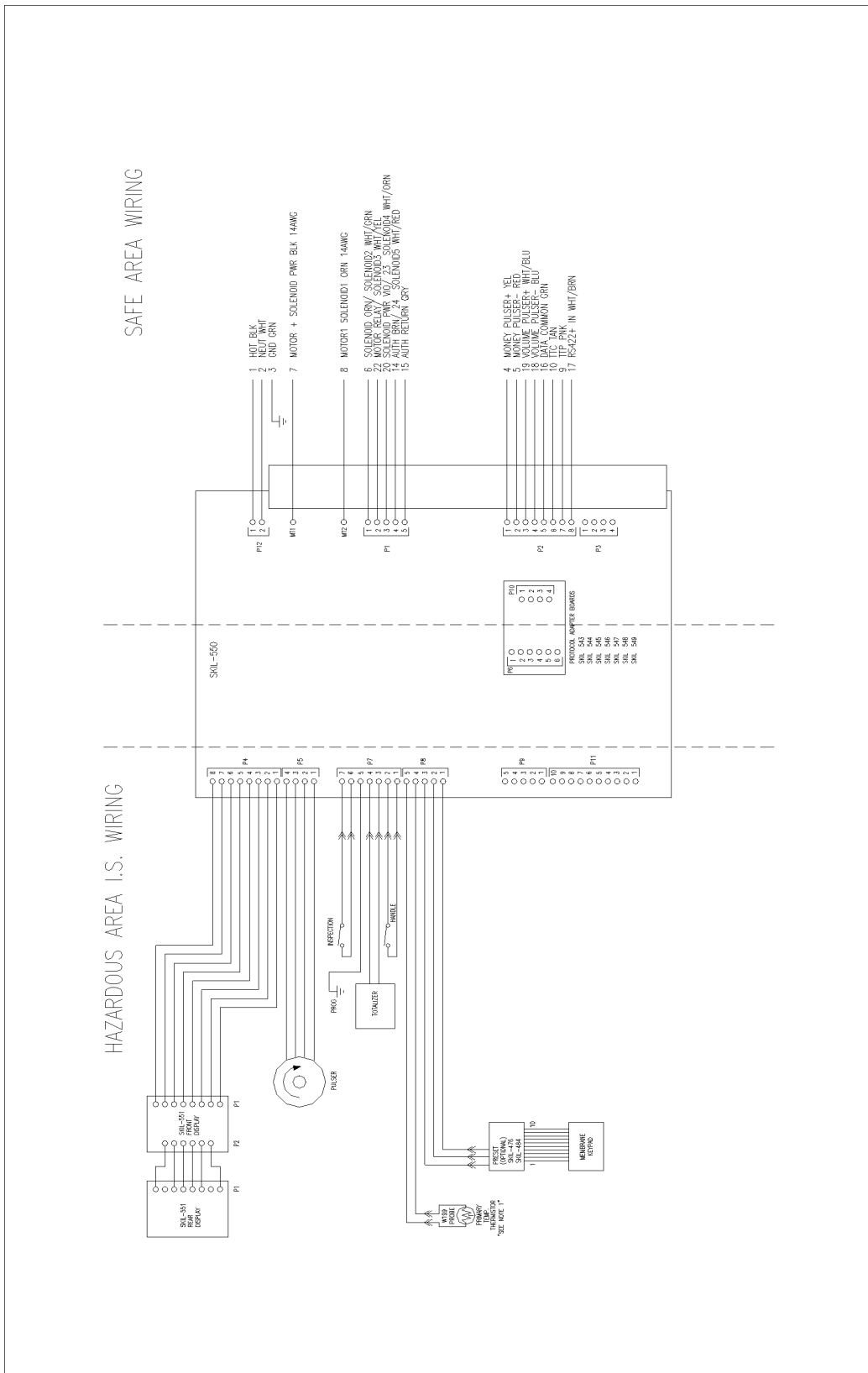
AVERTISSEMENT

KRAUS GROUP INC. assumes no responsibility for personal injury or equipment damage caused by non-observance of safety warnings, or non-compliance with national or international legal regulatory requirements.

4.2 WIRING DESCRIPTION TABLE: MICON 550LN

TABLE 1 – MICON 550LN 120 VAC (NORTH AMERICAN) WIRING DESCRIPTION REFERENCE: 4.3 WIRING DIAGRAM			
Wire No.	Wire Colour	AWG#	Description
1	BLACK	18	Head power hot line.
2	WHITE	18	Neutral or 240 VAC line 2 for head power and main board authorize.
3	GREEN	14	Ground. Connected internally to the casting and must be connected to the service ground.
6	ORANGE	18	Solenoid control output. Used to supply power to a slow flow or cut-off solenoid under MICON control.
7	BLACK	14	Pump motor power input. Connected to wire #8 when the MICON is authorized and the handle switch is ON. This circuit must be supplied through a circuit breaker and wiring adequate to power the pump motors.
8	ORANGE	14	Pump motor control output.
20	PURPLE	18	Solenoid power input. Connected to wire #6 and #22 when the MICON is authorized and the handle switch is ON.
22	WHITE/YELLOW	18	Solid state motor relay output.
14	BROWN	18	Authorize input. Application of 120 VAC will authorize the MICON 550LN to dispense product.
15	GREY	18	Authorize return. When 120 VAC is applied to wire #14, and the handle switch is ON, 120 VAC will be present on this line. If 120 VAC is not present when the handle switch is turned on, the MICON 550LN applies a 2.7 KO capacitive reactance between this line and wire #2 to serve as an authorize request load for Kraus Group Inc. self-serve equipment.
Low Voltage Lines			
4	YELLOW	18	Money pulser positive input. Normally connected to the pulser power supply positive line (+30 VDC Max) and provides power to money pulser line.
5	RED	18	Money pulser negative output. The MICON will source a maximum of 100 mA from the pulser positive (#4) to this line to form a pulse once for each penny of product dispensed.
18	BLUE	18	Volume pulser negative output. Provides a pulse for each specified fraction of a unit of volume (used for card/key systems).
19	WHITE/BLUE	18	Volume pulser positive input. Normally connected to the pulser power supply positive line (+30 VDC Max) and provides power to money pulser line.
Data Communication Lines			
9	PINK	18	Talk-to-pump. Connected to the appropriate terminal on the "TTP" terminal block of an MCIU, and carries messages from the console to the pump.
10	TAN	18	Talk-to console. Connected to the "TTC" terminal block of an MCIU and carries messages from the pump to the console.
16	GREEN	18	Data channel common. Connected to the "DDC" terminal block of MCIU.
17	WHITE/BROWN	18	RS-422 positive receive input.

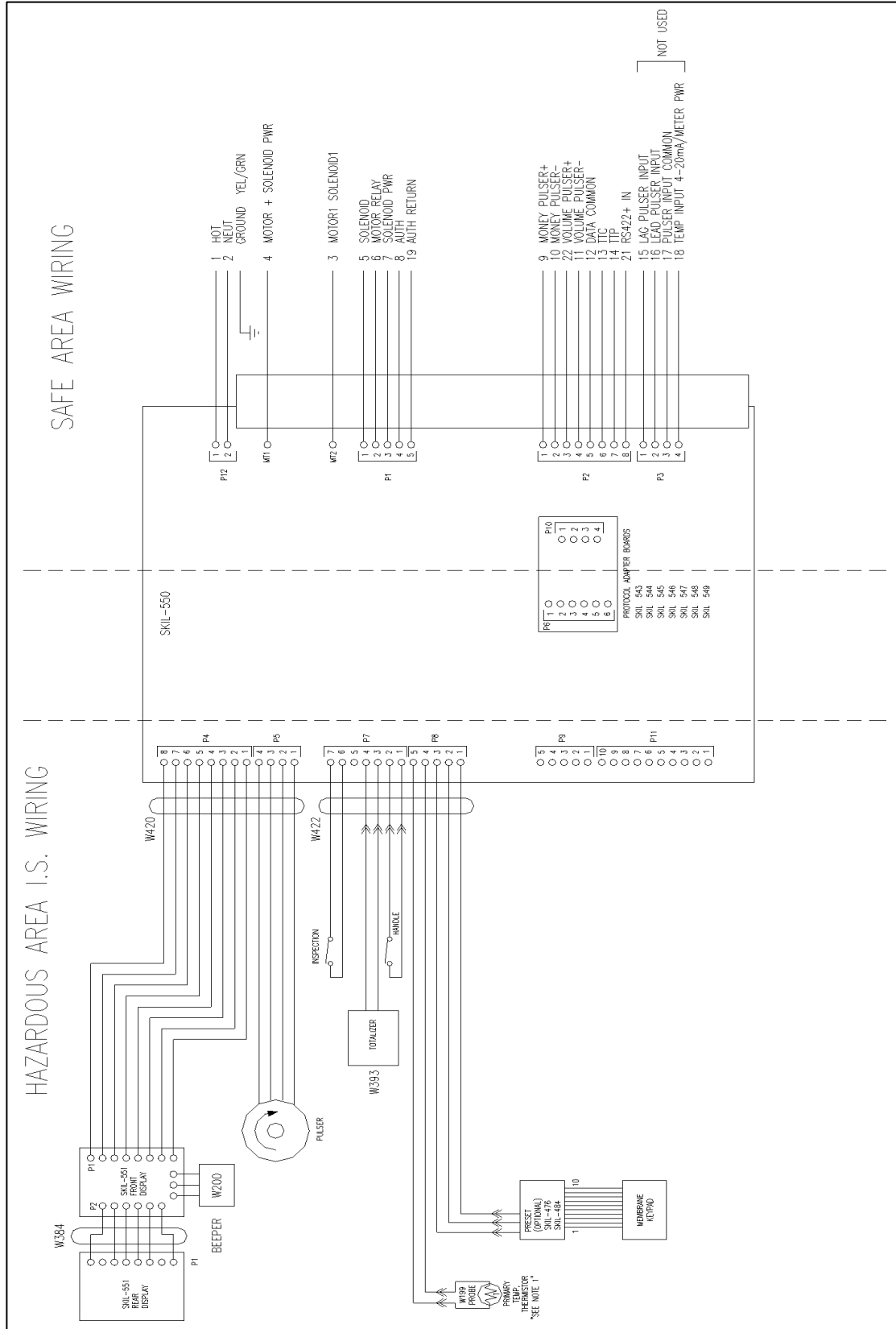
4.3 MICON 550LN WIRING DIAGRAM



4.4 WIRING DESCRIPTION TABLE: MICON 550LE

TABLE 2 – MICON 550LN 230 VAC (EUROPEAN) WIRING DESCRIPTION REFERENCE: 4.5 WIRING DIAGRAM	
Wire No.	230 VAC Lines – (metric type shielded cable)
YEL/GRN	Earth. Connected to the casting and must be connected to the service ground.
1	230 VAC head power hot line.
2	Neutral for head power and main board authorize/authorize circuit.
3	Motor Output.
4	Motor Power.
5	Solenoid Output.
6	Motor Relay Output
7	Solenoid Power
8	Authorize input. Application of 230 VAC will “authorize” the MICON to dispense product. If 230 VAC is not present when the handle switch is turned on, the MICON applies a 14 KO capacitive reactance between this line and wire #2 to serve as an authorize request load for Kraus Self Serve equipment.
19	Authorize output. When 230 VAC is applied to wire #20 and the handle switch is on, 230 VAC will be present on this line. (3 Amp. maximum load)
Wiring No.	Low Voltage Lines
9	Money pulser positive. Normally connected to the pulser power supply positive line (+30 volts maximum, DC only) and provides power to the money and volume pulser lines.
10	Money pulser negative. The MICON will source a maximum of 100mA from the pulser common (#9) to this line to form a pulse once for each penny of product dispensed. (Used with Kraus Monitor and Micro consoles.
11	Volume pulser negative. Provides a pulse (as described above for money pulser) for each specified fraction of a unit of volume. (Used for card key systems.)
15	Not used
16	Not used
17	Not used
18	Not used
22	Money pulser positive. Normally connected to the pulser power supply positive line (+30 volts maximum, DC only) and provides power to the money and volume pulser lines.
Wire No.	Micro 2, Concept 5000 & MCIU Data Communications Lines
12	Data channel common. This line is connected to the “DDC” terminal block of a MCIU.
13	Talk-to-console. This line is connected to the “TTC” terminal block of an MCIU and carries messages from the pump to the console.
14	Talk-to-pump. This line is connected to the appropriate terminal on the “TTP” terminal block of an MCIU and carries messages from the console to the pump.
21	RS-422 positive input.

4.5 MICON 550LE WIRING DIAGRAM



4.6 COMMUNICATION INTERFACE CONNECTIONS

Tables 3 and 4 below describe communication interface connections for the following interface options:

- Tokheim Interface
- Gilbarco Interface
- Tatsuno Interface
- RS-422 Interface
- RS-232 Interface
- Kraus MNET Interface

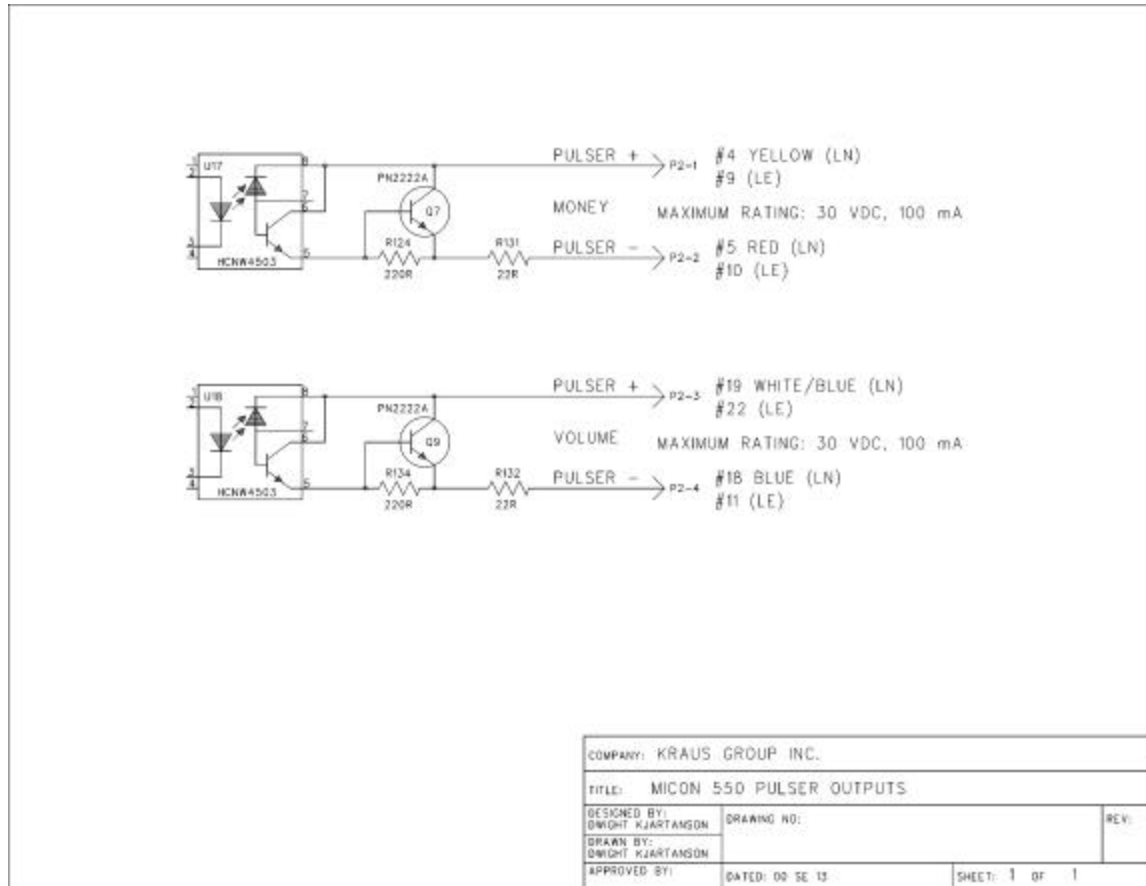
TABLE 3-COMMUNICATIONS INTERFACE CONNECTIONS FOR THE MICON 550LN (NORTH AMERICAN)

Customer Harness Wire#	Tokheim Interface	Gilbarco 2-wire Interface	Tatsuno Interface	RS-422 Interface	RS-232 Interface	Kraus MNET Interface
16	DCC	Not used	Not used	OUT "+"	Gnd	DCC
10	TTC	2-wire "+"	"+"	OUT "-"	Tx	TTC
9	TTD	2-WIRE "-"	"-"	IN "-"	Rx	TTP
17	Not used	Not used	Not used	IN "+"	Not used	Not used

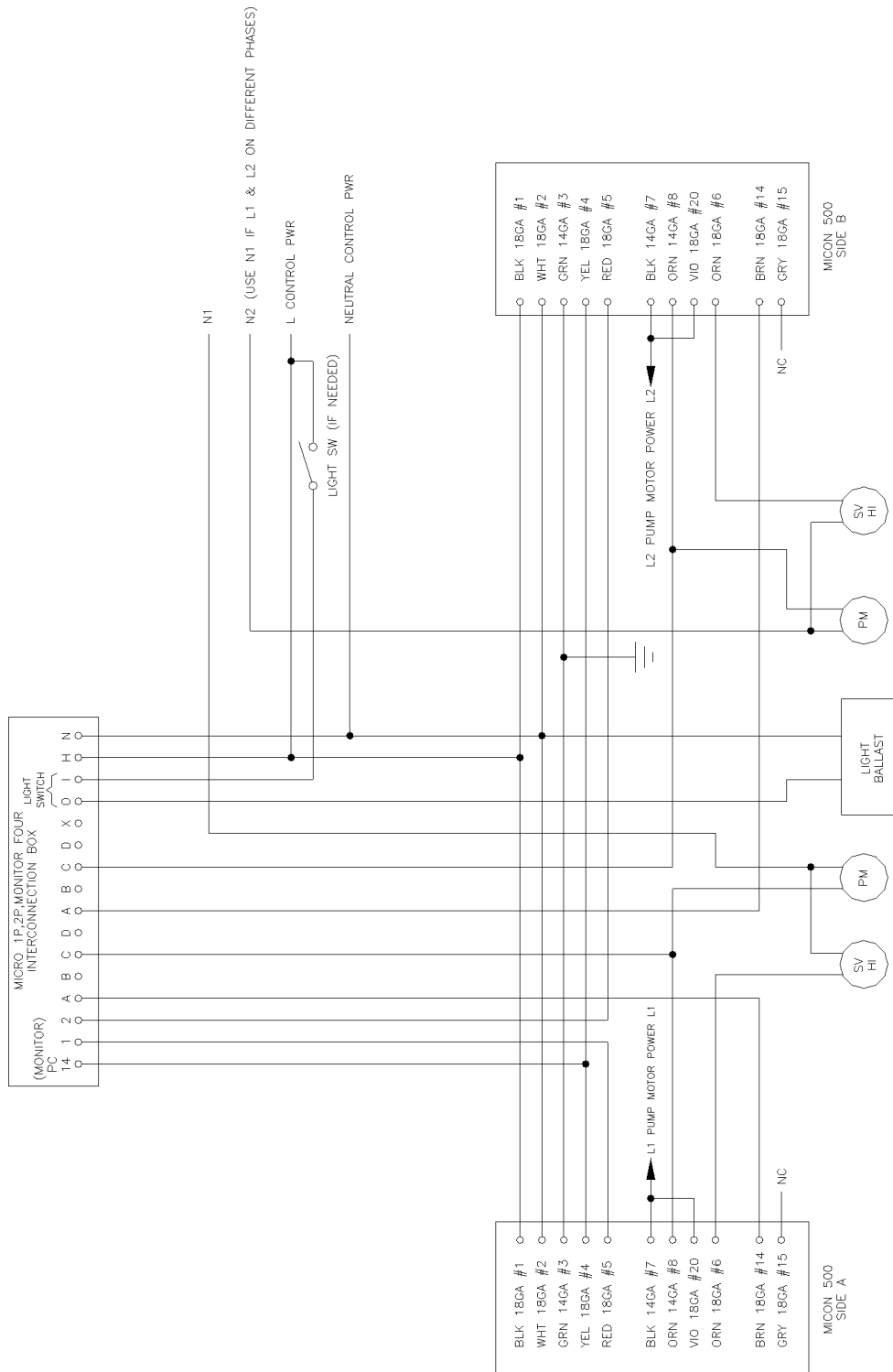
TABLE 4 – COMMUNICATIONS INTERFACE CONNECTIONS FOR THE MICON 550LE (EUROPEAN)

Customer Cable Wire	Tokheim Interface	Gilbarco 2-wire Interface	Tatsuno Interface	RS-422 Interface	RS-232 Interface	Kraus MNET Interface
12	DCC	Not used	Not used	OUT "+"	Gnd	DCC
13	TTC	2-wire "+"	"+"	OUT "-"	Tx	TTC
14	TTD	2-wire "-"	"-"	IN "-"	Rx	TTP
21	Not used	Not used	Not used	IN "+"	Not used	Not used

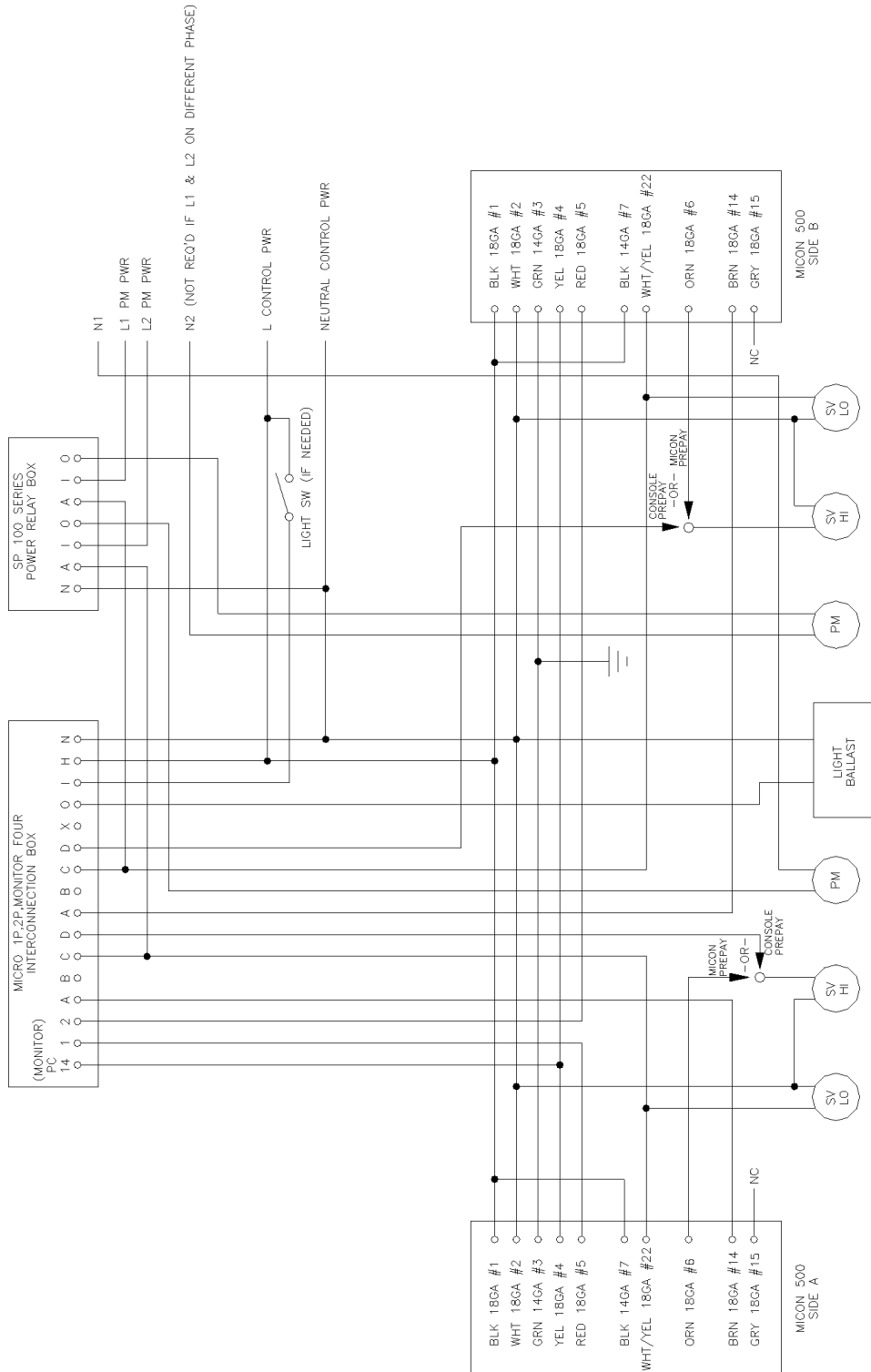
4.7 PULSE OUTPUT CIRCUIT DIAGRAM



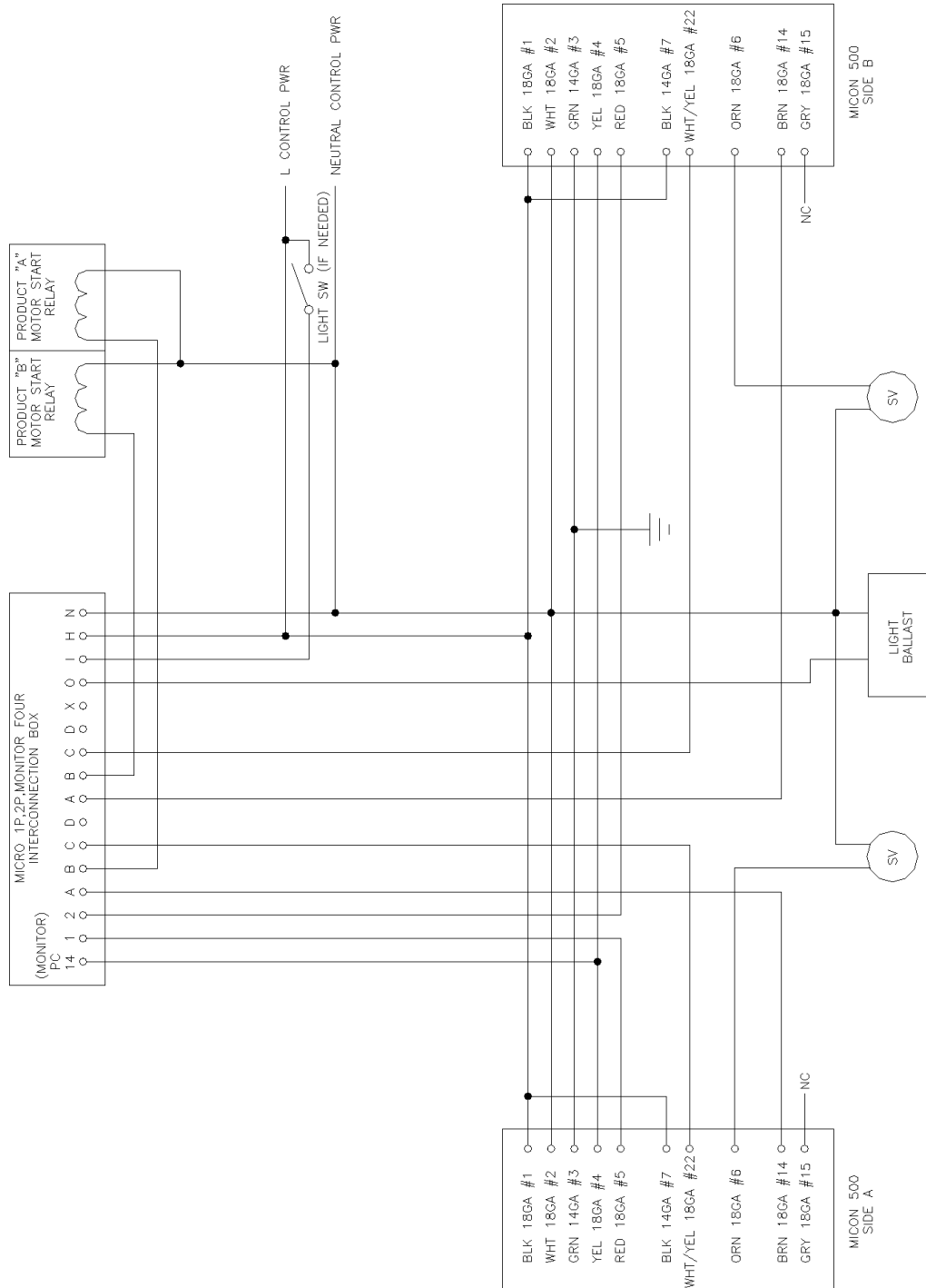
4.8 DUAL TWO PRODUCT DISPENSER WIRING DIAGRAM



4.9 DUAL SINGLE PRODUCT DISPENSER WIRING DIAGRAM



4.10 DUAL TWO PRODUCTS/SINGLE PRODUCT DISPENSER WIRING DIAGRAM



5.0 POST INSTALLATION CHECK

After completing the installation of the MICON and checking all wiring connections, correct operation should be verified as follows:

Note: When programming the MICON, the price security code is set. When set to zero then no price secure code is in effect.

1. Enter a price, as described in section 6.2.1 – Setting Prices.
2. **If card lock equipment is being used**, place the dispenser handle in the ON position. Authorize the MICON. This is normally done by inserting the appropriate card into the card terminal, then entering data (i.e., i.d. number, mileage, etc.) as required. The authorization signal received by the card terminal is sent to the MICON 550LN head via input wire #14 (N. American) or #8 (European).
3. **For stand-alone operation**, turn ON the dispenser handle. The authorization in this case is bypassed and the main board receives a direct signal. The display resets and the main flow valve is signalled by the MICON to open and commence fuel flow.
4. When resetting, displays should flash to all 8's momentarily, go blank, then return to zero. Now the solenoid valve controlling fuel flow should energize.
5. Dispense a convenient amount of product into a test can and check that the MICON 550LN displays the proper volume and money amount. For testing the MICON 550LN with ATC™ option refer to section 8.
6. Place the dispenser handle in the OFF position and ensure that the pump motor and/or solenoid shuts off.

This completes the post installation check. If the unit does not function as described above, contact your factory or service representative.

6.0 MICON 550LN OPERATION

6.1 CONSOLE ACCESSING FOR PRICE CHANGING: MCIU

The method used to set prices to MICON 550LN electronic pumpheads is dependent upon the type of self-serve consoles employed.

- If you are using a **Kraus Group Inc. Micon Communication Interface Unit (MCIU)**, MICON 550LN totalizers and prices may be accessed through the console. Refer to the console manufacturer's owner's manual for details.



ATTENTION

If it is necessary to place the station in manual mode of operation, all of the affected dispensers must be “reset”:


1. Place the console Emergency switch in the Emergency position.
2. Return the Emergency switch to the normal position and place the manual switch in the manual position. The station may now be operated in the manual mode.
3. Manual mode switch switches AC to line #14 (North American or line #20 European: Authorize). *In manual mode when emergency switch in emergency position, AC power is removed from solenoid power line.*

6.2 MICON 550LN COMMUNICATOR OPERATION

The hand held communicator (part # MC 200D, available as an option) allows the reading of both money and volume totals, and price setting.

6.2.1 SETTING PRICES

Setting prices on a 2-Tier dispenser is the same as on a single tier dispenser, except that pressing and releasing the 2-Tier button will change which price is being set.

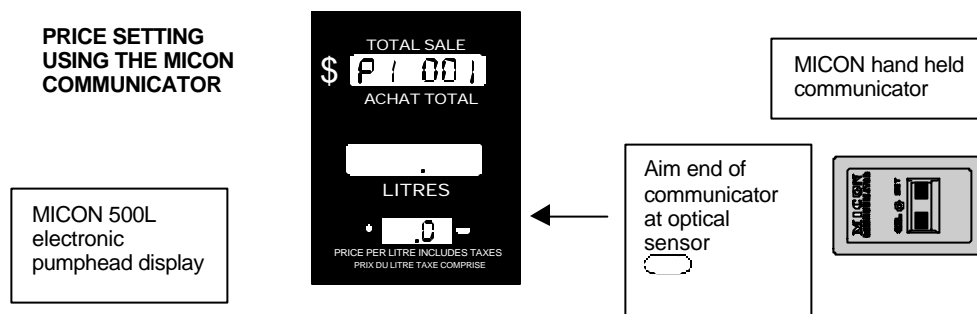
1. **To set "Prc 1", which is the regular price,** aim the communicator's transmitter (on top of the unit) at the optical sensor (oval hole ) at right of price display on Micon 550LN. The money display on the MICON 550LN displays "P SEC".

Use the "SET" and "SEL" key to enter the correct price security code as on the single tier dispenser.

The money display will show "P1 XXX", which means price 1 program. Use the same procedure to enter price 2.

2. **To set "Prc 2", (2-Tier applications only),** follow the same procedure as setting price 1, except press and release the 2-Tier button to change the display from "P1 XXX" to "P2 XXX", at the same time it displays "P1 XXX" in money display after price secure code was matched.

FIGURE 4




6.2.2 READING TOTALIZERS

Reading volume and dollar totals on 2-Tier dispenser totalizers is the same as on single tier dispensers totalizers, except that pressing the 2-Tier button will change which volume/dollar setting (regular or discount) is being read.

The two-tier dispenser contains two sets of totalizers:

- Volume and money totals for Price 1 sales.
- Volume and money totals for the Price 2 sales.

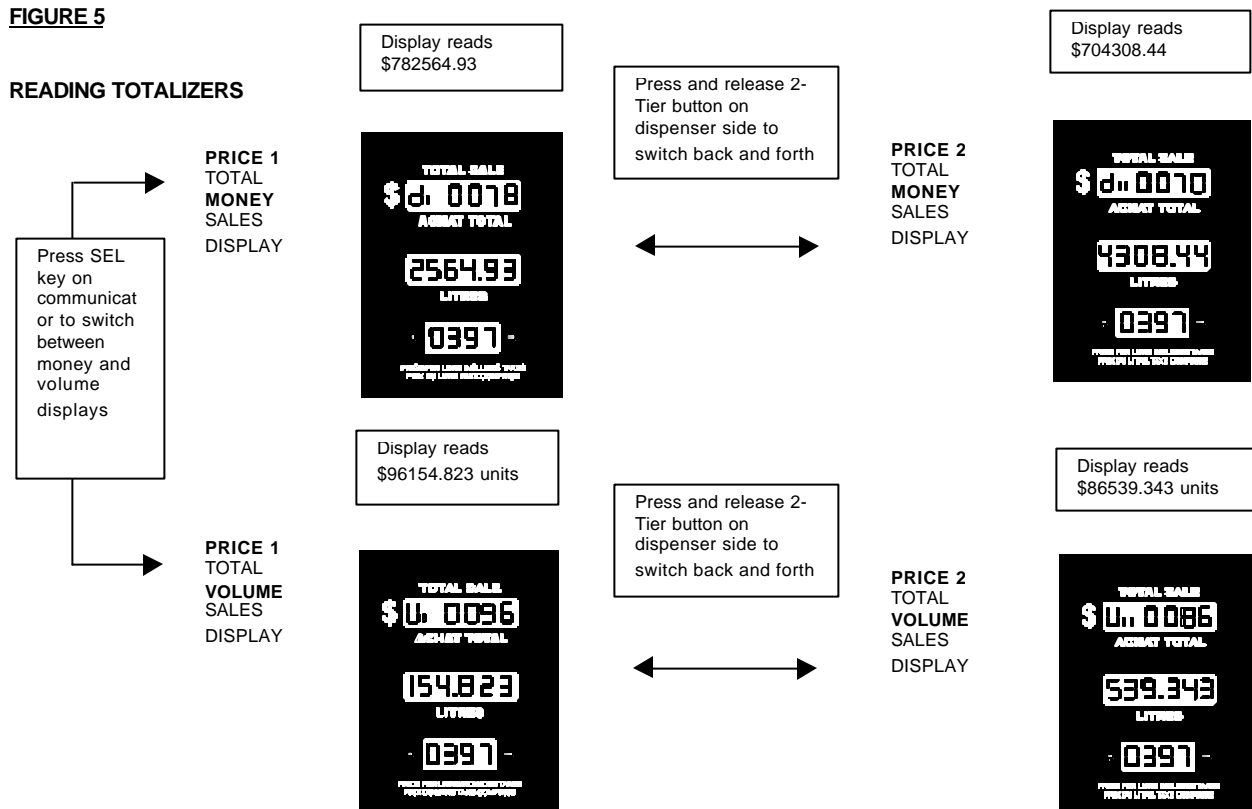
To read totalizers:

1. Ensure the dispenser handle is in the **OFF** position, and the MICON head power is turned ON. Aim the communicator's transmitter (on top of unit) at the optical sensor (oval hole ) at right of price display on MICON 550LN. Press and hold the SEL key until the money sales total is displayed.
2. Display will show "d i" for Price 1 money totals. Press and release the 2-Tier button (2-Tier applications only). Display will show "d ii" for Price 2 money totals.
3. Press the SEL key until the display shows "U i" (Price 1 volume total) or "U ii" (Price 2 volume total). Press and release the 2-Tier button to switch back and forth between "U i" and "U ii" (2-Tier applications only).
4. Press and hold the SEL to switch back and forth between money and volume total displays.

Manually adding Price 1 and Price 2 volume or money totals will yield grand sales totals.

FIGURE 5

READING TOTALIZERS



6.3 2-TIER PRICE OPERATION

On MICON 550LN units equipped with the two-tier price option, it is possible to make sales at two different prices. For example, cardholders may receive a discount from the regular price while fuel is dispensed to non-cardholders at full price. The unit maintains separate totalizers for each price of sales.

6.3.1 2-TIER OPTION INSTALLATION

2-Tier installation requires a connector (included with part #W392 – harness) and a pricing push-button switch (part #PWP 320) or key-switch (part #Y101). To order these optional parts contact your local service representative.

To install the 2-Tier option:

- Connect the push button switch between the blue and orange wires on the provided connector. The push button switch can then be mounted in a 7/8" hole in the side of the dispenser.
- An optional key-switch is available, which can be used instead of, or together with, the push-button. Wire the key-switch and push-button in series, not parallel.

6.3.2 MAKING PRICE 2 SALES ON A 2-Tier DISPENSER

1. To make a Price 2 sale, simply press and release the 2-Tier push button, located on the side of the dispenser, before turning the dispenser handle ON. When the button is pressed, the Price 2 will be displayed. The next sale will proceed at the Price 2.
 - If the 2-Tier button is pressed by mistake and you do not wish to make a discounted sale, simply press and release the 2-Tier button again and the dispenser will revert back to the regular price.
 - Pressing the 2-Tier button while the dispenser handle is in the ON position has no effect on the dispenser.
2. When the Price 2 sale is completed, turn the dispenser handle to the OFF position. The regular price will again be displayed and subsequent sales will occur at the regular price.

The INFO-PAC used to monitor and program the MICON 550LN pumpheads has a setting intended for use when 2-Tier (regular and discount) pricing is in effect: PRC RESTORE (price restore). When this setting is ON (default setting), the MICON automatically reverts back to tier 1 (regular pricing) after each discounted transaction.

It is possible to set PRC RESTORE OFF, in which case the price used for the current sale is retained for the next sale. Refer to INFO-PAC MICON 550LN Programming Manual for details.

6.4 ELECTRONIC AUDIT TRAILS

The MICON 550LN is equipped with electronic audit trails in the form of non-resettable event counters. This feature is facilitated in software, and meets the current requirements of *Measurement Canada* regulations. The top display of the MICON 550LN electronic pumphead indicates the number of changes to device configuration parameters performed with the INFO-PAC, as shown in FIG. 3. The middle display of the MICON 550 electronic pumphead indicates the number of changes to the device calibration factor.

7.0 ELECTRONIC CALIBRATOR ADJUSTMENT

The MICON 550LN is equipped with an electronic calibration feature. This feature provides the MICON 550LN with the capability of electronically compensating for meter errors of +/-19.99%. The required calibration error is programmed into the MICON via the INFO-PAC hand held programming device. The factory default is set for 0% calibration error. If the meter is correctly calibrated, no further adjustment is necessary.

When the inspection switch (connected between) P12-1 and P12-5) is turned ON, the MICON will display calibration information or ATC™ (automatic temperature compensation) information (if ATC™ is installed). The display then indicates:

- TOP DISPLAY - temperature (ATC™ installed and ON) during the sale.
% calibration (ATC™ OFF) when handle is off.
- CENTER DISPLAY - uncompensated vol. (same as normal if ATC™ is OFF or not installed)
- BOTTOM DISPLAY - Flow rate is displayed during the sale. Status is displayed when the handle is off.

Until flow begins, the product compensation type will be displayed for one of the following products:

- GAS** = gasoline
- ProP** = propane
- dESL** = diesel fuel
- OFF** = ATC turned OFF or not installed

If calibration adjustment is required, follow guidelines below:

1. To receive MICON 550LN settings with the INFO-PAC, follow steps as outlined below:

To receive information from the MICON 550LN:

- 1) Turn INFO-PAC ON by pressing left arrow key. Using up or down arrow key, scroll to INFO-PAC RX MICON option. Set **RX MICON ON** by pressing left or right pointing arrow key.

7.0 ELECTRONIC CALIBRATOR ADJUSTMENT (CONTD)

- 2) Take INFO-PAC and go to the front display of the MICON 550LN electronic pumphead. Locate optical sensor (oval hole) at right of price display on MICON 550LN. Aim INFO-PAC receiver/transmitter (located behind red tinted filter at centre edge of INFO-PAC) at MICON 550LN optical sensor. Red LED (light emitting diode) to left of MICON 550LN price display flashes as INFO-PAC receives data from MICON550LN.
- 3) When INFO-PAC has received a copy of the MICON 550LN setup information correctly, INFO-PAC displays will show "Received Micon". To view each setting, scroll with the up or down arrow key.


2. If MICON 550LN is equipped with ATC™ set INFO-PAC menu option **ATC off**.
3. Set INFO-PAC calibration factor to **C.FACTOR +00.00%** (default).
4. Follow steps to **transmit** INFO-PAC settings to MICON 550LN, outlined in the INFO-PAC MICON 550LN Programming Manual and described below.

To **transmit** information to the MICON 550LN:

- 1) Remove screw to disconnect program wire. This requires breaking a *Weights and Measures* seal.
- 2) Scroll to INFO-PAC TRANSMIT OPTION. Set **TRANSMIT on**.

Before transmitting settings from the INFO-PAC to the MICON 550LN electronic pumphead, scroll carefully through all options displayed on the INFO-PAC, and ensure that each and every one is still on the desired setting, even if you have changed only a single setting.

Whenever programming with the INFO-PAC, ALL parameters are rewritten in the MICON 550LN.

- 3) Locate optical sensor (oval hole ) at right of price display on MICON 550LN.
- 4). Aim INFO-PAC transmitter/receiver (located in center behind red tinted filter on edge of INFO-PAC) at MICON 550LN optical sensor.

Red LED on left of MICON 550LN price display flashes as MICON receives data from INFO-PAC .

When MICON 550LN has correctly received setup information, it will show "donE" on MICON 550LN price display.



Exit programming made by reconnecting program wire.

- 1) Switch the head back ON and run the MICON 550LN using the new settings.
 - 6) Install a suitable legal seal through the two adjacent drilled cover bolts and program wire screw to ensure the cover cannot be removed.
5. Place MICON 550LN handle switch in ON position. Observe MICON money and volume displays reset to zero.
 6. Dispense a known volume of product and record the reading on the volume display.

7.0 ELECTRONIC CALIBRATOR ADJUSTMENT (CONT'D)

7. Use formula below to calculate percentage correction required.

$$\% \text{Correction} = \left(\frac{\text{Actual Volume} - \text{Register Volume}}{\text{Register Volume}} \right) \times 100$$

8. Set calibration factor on INFO-PAC to the closest setting available.

Example

Product dispensed: 25.00 Litres
Register reading: 26.360 Litres

$$\% \text{Correction} = \left(\frac{25.00 - 26.360}{26.360} \right) \times 100 = -5.159\%$$

Set INFO-PAC calibration factor to **C.FACTOR – 5.16%**.

Disconnect the program wire to enter program mode and transmit the calibration factor to the MICON with the TRANSMIT function. The dollars section of the MICON 550LN display would show “-5.16” for the example given.

9. Repeat steps 5 and 6, to verify the calibration of the MICON 550LN.
10. If ATC™ used at this installation, set ATC™ INFO-PAC menu option **ATC on**, and retransmit settings to MICON.
11. Replace the cover of the explosion-proof MICON 550LN housing and:
- a) Install a suitable legal seal through the two adjacent drilled cover bolts and program wire screw to ensure the cover cannot be removed without breaking the seal.

8.0 Automatic Temperature Compensation

The MICON 550LN is optionally available with automatic temperature compensation of the product dispensed.

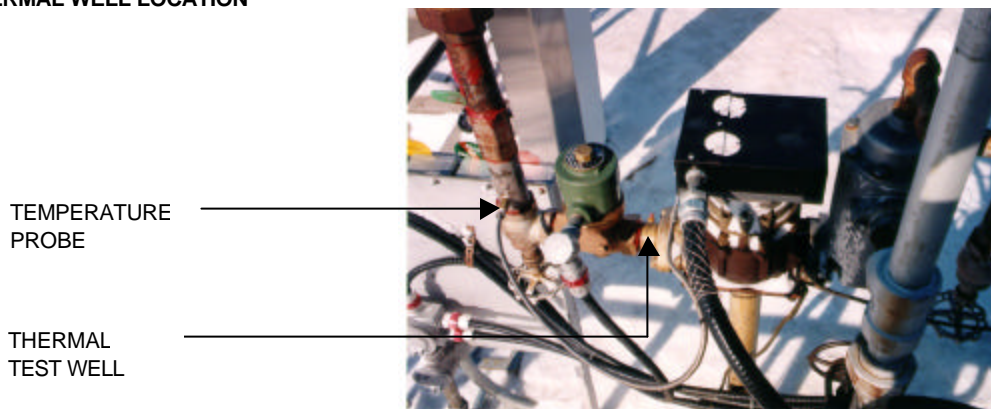
To install the MICON 550LN with the ATC™ feature, it will be necessary to install the temperature probe and a test well in the meter line.

It is a requirement of Measurement Canada, an agency of Industry Canada, that a thermal well be provided next to the installed temperature probe, for inspection purposes. The following guidelines should be observed when installing an inspection test well:

1. The thermal well must be positioned to retain thermally conductive fluid. The hole in the fuel line should be drilled (drill size Q) and tapped 1/8" NPT in order for the well to be at an angle within 45° of vertical when the well is installed and the assembly is reconnected. Install a 1/8 inch NPT test well extension fitting (Kraus part #BC 546) if needed, into the hole which was drilled and tapped to accommodate the insertion of the test well (Kraus part # BC 407).
 - Test well and probe are to be as close together as practical and the test well must be accessible to the inspector after installation. Fittings are supplied with the MICON 550LN (additional fittings available upon request).
 - The fitting should provide easy access for the insertion of a thermometer.
 - The fitting should be placed in an appropriate location so as not to hinder reinstallation of the assembly.
2. Install the test well into the extension fitting and tighten into place.
3. Cover the test well assembly with the supplied protective plug.

FIGURE 6

THERMAL WELL LOCATION



ATTENTION

If the connection is made with less than 5 threads fully engaged, it will be necessary to solder the fitting into place. Connections which are in excess of 5 full threads do not require soldering, but must make use of a thread sealing compound suitable for use with the intended fuel type.

In addition to the test well and probe fitting, new installations will require two BC-256 labels ("VOLUME CORRECTED TO 15°C"). These labels must be attached to each faceplate of the dispenser and be visible to the customer. Labels are provided with MICON 550LN and additional labels are available upon request.

The Automatic Temperature Compensator feature compensates the volume of product delivered to the equivalent volume at 15 degrees Celsius (15°C default). In order to accurately sense the temperature of the product, the probe must be directly immersed into the product as close as possible to the meter. The following procedure should be used to verify the operation of the operation of the ATC™:

1. Install and connect the temperature probe.
2. Turn the inspection switch to “ON” ATC™ position.
3. Dispense a convenient volume of product into a test can and record the temperature and volume of the product in the can.
4. The volume indicated on the display of the MICON 550LN is the UNCOMPENSATED volume. This volume should agree directly with the volume measured in the test can. If it does not agree, the meter is out of calibration.
5. Calculate the compensated volume in the test can using the actual volume and the temperature of the product in the test can and the appropriate correction tables. The calculated compensated volume should agree with the compensated volume shown when the inspection switch is in “normal” display position. If the values do not agree, a problem exists in the MICON or its installation.
6. Return the inspection switch to the down position for “normal” display position.

This completes the testing of the ATC™. If you encounter any difficulty please contact your service representative.

9.0 PULSER ASSEMBLY REPLACEMENT

If troubleshooting procedures indicate a defective pulser then the pulser assembly should be replaced as described in steps 1 to 5, as follows:



NOTE

This does not apply to remote pulsers.

1. Remove coupling from meter.
2. Remove four phillips screws, that hold the pulser assembly to the bottom of the tub casting.
3. Remove and unplug pulser assembly.
4. Replace defective pulser assembly with new one.
5. Test the dispenser for proper operation and calibration.



If electromechanical totalizer is attached to defective pulser assembly, transfer it to the new pulser assembly before reinstalling.

NOTE

10.0 MICON DISPLAY FAULT CODES

Should an operational error occur while using the MICON 550LN electronic register, a fault code will show in the bottom display.

Fault codes are interpreted as shown in Table 5.

TABLE 5 – MICON 550L FAULT CODES

DISPLAY	DESCRIPTION OF FAULT	PROBABLE CAUSE	RECOMMENDED ACTION	TO CLEAR FAULT CONDITION
co26	PULSER FAULT	Missing or disconnected pulser	Check customer harness lead electrical connections.	1. Correct source of error. 2. Turn handle switch OFF, then ON.
co27	PULSER BUFFER OVERFLOW FAULT	Input pulses coming in faster than MICON 550LN rated to handle. Meter may be programmed for higher pulse per unit (ppu) number than MICON 550LN rating.	Ensure meter and MICON 550LN flow rates are compatible.	
co28	DISPLAY DISCONNECT FAULT	Display disconnected or improperly connected	Check connections. If connections are good, display may require replacement.	
co29 co50	EEPROM CHECKSUM FAULT	EEPROM corrupted.	Reset pumphead by turning handle switch OFF, then ON. If reset ineffective, reprogram the MICON, using the INFO-PAC. If reset and reprogramming ineffective, internal processor may require replacing. Contact your service representative.	
co30	EXCESSIVE REVERSE COUNTS	Pulser connected backwards.	Ensure base is correct for meter direction.	
co31	TEMPERATURE PROBE	Probe circuit open.	Check probe connections/replace probe.	
co32	TEMPERATURE PROBE	Probe circuit shorted.	Check probe connections/replace probe.	

FIGURE 7 – FAULT CODE DISPLAYED BY MICON 550LN ELECTRONIC REGISTER



Fault codes listed on previous page show in MICON 550LN **bottom display**.

11.0 Troubleshooting and Repair Guide

If, after installation, the dispenser does not operate as it is supposed to, the following tables should be consulted **before** calling your service representative.

Troubleshooting tables have been divided alphabetically into the following categories:

1. Communicator
2. Display
3. (MICON) pumphead power
4. Pump motor and/or solenoid valve
5. Registration

1. COMMUNICATOR		
Problem	Possible Cause	Recommended Action
1.1 Unable to read totals or price setting with the communicator, but it functions normally with other MICON heads.	<p>Defective optical reader on the display board.</p> <p>Defective display wiring harness.</p> <p>Defective SK550 control board.</p> <p>Older communicators may not work on newer MICONs, the communicator may need to be replaced or modified.</p>	<p>Replace display board.</p> <p>Replace harness.</p> <p>Contact your service representative to order new board.</p> <p>Contact your service representative for communicator upgrade or replacement.</p>
1.2 Communicator exhibits poor range when attempting to set prices or read totals on all MICON heads.	<p>Optical reader is in direct sunlight.</p> <p>Weak or dead battery in communicator.</p>	<p>Shade optical reader with hand.</p> <p>Unscrew back of communicator and replace 9-volt battery.</p>

2. DISPLAY (cont'd)

Problem	Possible Cause	Recommended Action
<p>2.1 Display will not change</p>	<p>The breaker supplying power to wire #1 has been tripped.</p> <p>No head power.</p> <p>Defective SK550 control board</p>	<p>Re-trip breaker.</p> <p>Check 120 VAC (240 VAC European) supply to wire #1 (hot) and wire #2 (neutral).</p> <p>Contact your service representative to order new board.</p>
<p>2.2 Segment(s) on display board are staying ON all the time or missing entirely. One display window or all three windows reading 8's. Other display board O.K.</p>	<p>Defective display board.</p> <p>Defective display wiring harness.</p>	<p>Contact your service representative to order new board.</p> <p>Unplug cable from MICON head and check connections.</p>
<p>2.3 Both display boards reading 8's or erroneous segments being displayed.</p>	<p>Defective display board.</p> <p>Defective display wiring harness.</p> <p>Defective SK550 control board.</p>	<p>Unplug display boards from the MICON head one at a time and observe display to isolate defective board.</p> <p>Unplug cable from MICON head and check connections.</p> <p>Contact your service representative to order new board.</p>
<p>2.4 MICON displays will not reset to zero when pump handle ON. Product is dispensed; previous sales are added onto first.</p>	<p>Switch is not disengaging when the handle is turned OFF.</p>	<p>The pump handle is mechanically coupled to the electronic head, and actuates a switch. Verify correct operation of microswitch and electrical connections.</p>

3. MICON (PUMPHEAD) POWER (cont'd)

Problem	Possible Cause	Recommended Action
3.1 MICON shuts OFF during delivery.	Error Code Authorize power loss.	Isolate and replace defective part. Move pump handle from OFF to ON position to reset dispenser. Check for authorize power loss on wire #14 (NA), #20 (EU)
3.2 MICON shuts OFF at beginning of delivery.	No pulses being generated (pulser). (Observe the PPU [price per unit] display in the MICON. If fault code PULS displays, problem is missing or disconnected pulser.)	Check pulser cable lead electrical connections.

4. PUMP MOTOR AND/OR SOLENOID VALVE

Problem	Possible Cause	Recommended Action
<p>4.1 No reset cycle, pump motor and/or solenoid valve will not turn on when handle is placed in the ON position. Previous sale is not cleared when handle is turned ON.</p>	<p>Defective or inoperative linkage to MICON handle shaft (detent).</p> <p>No authorize input voltage.</p> <p>Defective microswitch.</p>	<p>Replace linkage.</p> <p>Check for 120 VAC on wire #14 or #15. (European: Check for 240 VAC on wire #20 or #19.)</p> <p>Contact your service representative to order new microswitch or main board.</p>
<p>4.2 Pump motor and/or solenoid valve will not turn on when handle is placed in the ON position. Reset sequences displaying 8's and clearing last sale.</p>	<p>If both pump motor and solenoid valve are not coming on, the problem could be a defective temperature probe (ATC only).</p> <p>No power supplying the internal triacs.</p> <p>Defective main board. One of the triacs in the control board SK550 is burnt.</p>	<p>Check the PPU (price per unit) display in the MICON 550LN. If fault code co31 displays, problem is disconnected temperature probe. If fault code co32 displays, problem is short circuited temperature probe circuit.</p> <p>Check for 120 VAC (230 VAC European) on motor and solenoid input wires. Check output power on wire #6 (solenoid) or wire #8 (motor). European: Check output power on wire #5 (solenoid) or wire #3 (motor).</p> <p>Check for an open circuit on either the motor, solenoid or dead man switch.</p>
<p>4.3 Pump motor is always ON when the handle is in the OFF position (new installation).</p>	<p>If the motor is controlled by the MICON, the handle could be in the wrong position.</p> <p>Shorted triac.</p>	<p>Remove quick connect and move to opposite position on switch.</p> <p>Find cause of short and replace main control board.</p>

5. REGISTRATION

Problem	Possible Cause	Recommended Action
<p>5.1 Product can be dispensed but is not registering on either the mechanical totalizer or electronic display.</p>	<p>Inoperative drive to MICON input shaft.</p> <p>Broken coupling between the meter and electronic register.</p>	<p>Repair drive.</p> <p>Replace coupling.</p>
<p>5.2 Product flow registering only on mechanical totalizer.</p>	<p>Defective display board.</p> <p>Defective main board.</p>	<p>Replace board as needed.</p> <p>Replace board as needed.</p>
<p>5.3 MICON registering incorrectly (new installation or board replacement only).</p>	<p>Incorrect ATC (automatic temperature compensation) or programming of IN COUNT or MULTIPLIER setting.</p>	<p>Consult INFO_PAC MICON 500 Programming Manual (document number: 206KT00.PRG R00).</p>
<p>5.4 MICON totals are jumping or the price is changing by itself.</p>	<p>Defective SK550 control board.</p>	<p>Contact your service representative to order a new board.</p>



REMINDER

After correcting source of error, always turn dispenser handle switch OFF, then ON.

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