

# KIB ENTERPRISES

53402 C.R. 13 • Elkhart, IN 46514  
Phone: (574) 262-0518 • Fax: (574) 262-5172

## Monitor Panel

### Monitor Features

#### K-PANEL SYSTEMS

##### FUNCTIONS

Allows monitoring of fresh water, gray water, black water, and battery levels. All functions are controlled from one test switch for easy operation. Optional functions allow monitoring of LP gas, and a fourth water tank. All panels also have a lighted pump switch to control the power to the water pump.

##### DECOR

We have two types to offer. The first being a wall mount type and the other designed to install into most popular range hood vents.

The entire wall mount type is mounted in a black ABS bezel with easy to clean matte finish lexan labels for continued good appearance. The overall size is only 3 9/16" H X 4 7/8" W and it is only 3/4" deep when mounted on the wall.

The range hood model is constructed out of 18ga. steel with the same type of matte finished label as the wall mount. This type also has switches in it for controlling the fan and light in the range hood vent.

Both models can be built with your custom labels using your company logo, custom colors, etc. upon approved agreements.

##### CIRCUITRY

The electronics is using integrated circuit technology with complete voltage regulation, for the most reliable circuit design in the industry. This assures proper level displays with a wide range of input voltage from around 9VDC all the way up to 35VDC. Eliminating erroneous level display from weak batteries and power surges caused by some converters and generators. All displays are multi-color lighted by solid-state L.E.D.'s to eliminate the burnout problems from incandescent light bulbs.

##### POWER REQUIREMENTS

The systems only draws power when a switch is on, causing no battery to drain while not in use. The monitor panel display consumes 175ma. maximum with all options and only during the time the test switch is pushed on. The only other consumption is the draw of your pump, light, or fan if they are in use.

##### INSTALLATION

The monitor panel attaches to the all with four #4 flat head screws and the faceplate with the circuitry snaps into the bezel over these screws for a very clean appearance. The range hood model snaps into the opening in the front of the range hood vent, again for a very clean appearance.

The tanks have a very small pigtail attached to your probes requiring only one wire to return to the panel from each tank and one combined ground wire for all tanks. These wires can be as low as 22 gauge, eliminating the need for a bulky and expensive multi-wire harness to go to each tank.

##### SERVICEABILITY

This system is designed for trouble free operation, however, it is also designed for ease of troubleshooting and service for those few that may require attention.

The circuit board and faceplate snap into the bezel and plug into the wiring with one connector allowing you to troubleshoot the system within seconds, by unplugging the board and plugging a new one in. No wires ever have to be disconnected from the system and there is no need for any special testers to pinpoint the problem. Should there ever be a problem with the circuit board, it can be sent in to KIB for repair while the rest of the system remains wired up. This allows the

use of the pump, fan, etc. and there isn't any holes in the wall from removal of the bezel during that time the circuit is being repaired.

We at KIB are very excited about the K-Panel series of monitors. We feel this will give you and your customers the very best in features and trouble free operation. Not discounting the ease of serviceability if ever required.

#### K-Panel Battery Read Out

|                                | 1988 | 2-91 | 1-92 |
|--------------------------------|------|------|------|
| CHARGE                         | 14.5 | 13.3 | 12.7 |
| (CONVERTER)                    |      |      |      |
| GOOD                           | 12.6 | 12.6 | 11.9 |
| FAIR                           | 12.0 | 12.0 | 11.2 |
| LOW                            | 6.0  | 6.0  | 6.0  |
| ALL VALUES D.C. VOLTS + OR -5% |      |      |      |

#### M-PANEL SYSTEMS

##### FUNCTIONS

Allows monitoring of fresh water, gray water, black water, and battery levels. All functions are controlled from computer grade "tact" switches to easy operation. Optional functions allow monitoring of LP gas, and fourth water tank. All panels also have a lighted pump switch to control the water pump.

##### DECOR

The entire panel is mounted in a black ABS bezel with easy to clean matte finish lexan label for continued good appearance. The overall size is only 2.75" H x 4.5" W and it is only .75" deep when mounted on the wall.

##### CIRCUITRY

The electronics is using integrated circuit technology with complete voltage regulation, for the most reliable circuit design in the industry. This assures proper level displays with a wide range of input voltage from around 9VDC all the way up to 35VDC. Eliminating erroneous level display from weak batteries and power surges caused by some converters and generators. The display is lighted by solid-state L.E.D.'s to eliminate burnout problems.

##### POWER REQUIREMENTS

The system only draws power when a switch is on, causing no battery to drain while not in use. The monitor panel display consumes 75ma. maximum with all options and only during the time a switch is pushed on. The only other consumption is the draw of your pump, when it is in use.

##### INSTALLATION

The monitor panel attaches to the all with four #4 flat head screws and the faceplate with the circuitry snaps into the bezel over these screws for a very clean appearance.

The tanks have a very small pigtail attached to your probes requiring only one wire to return to the panel from each tank and one combined ground wire for all the tanks. These wires can be as low as 22 gauge,

eliminating the need for a bulky and expensive multi-wire harness to go to each tank.

### SERVICEABILITY

This system is designed for trouble free operation, however, it is also designed for ease of troubleshooting and service for those few that may require attention.

The circuit board and faceplate snap into the bezel and plug into the wiring with one connector allowing you to troubleshoot the system within seconds, by unplugging the board and plugging a new one in. No wires ever have to be disconnected from the system and there is no need for any special testers to pinpoint the problem. Should there ever be a problem with the circuit board, it can be sent in to KIB for repair while the rest of the system remains wired up. This allows the use of the pump and there isn't any holes in the wall from the removal of the bezel during that time the circuit is being repaired.

We at KIB feel this will give you and your customers the very best features and trouble free operation. Not discounting the ease of serviceability if ever required.

#### M-Panel Battery Read Out

|        |       |    |       |
|--------|-------|----|-------|
| CHARGE | 12.7  | TO | 12.85 |
| GOOD   | 12.10 | TO | 12.15 |
| FAIR   | 11.60 | TO | 11.65 |
| LOW    | 6.0   | TO | ---   |

ALL VALUES D.C. VOLTS + OR -5%

### DIAGNOSIS GUIDE FOR THE KIB MONITOR SYSTEM

#### ISOLATE THE MALFUNCTION

##### A. Monitor Panel

###### 1. Printed Circuit Board

- Damage
  - Short Circuit
  - Broken Component
- Defective
  - Component Failure

###### 2. Switch

- Damage
  - Broken
- Defective
  - Mechanical Failure

##### B. Wiring

###### 1. Coach Wiring

- Open Wire
- Shorted Wire

###### 2. Connectors

- Loose or Open

##### C. Tank

###### 1. Inserts (Probes)

- Placement

###### 2. Pigtail (K101)

- Damage/Defective
  - Open Circuit
    - Cracked Resistor
- See Test Procedure

### TROUBLE SHOOTING FULL SYSTEM

**PROBLEM:** No lights on panel when switch is pushed.

**TEST:**

1. Make sure B+ wire (red) has 12 VDC connected.
2. Make sure ground wire (white) is connected to panel.

**DIAGNOSIS:** 1. Correct wiring or voltage supply problem.

- Polarity
- Fuse
- Open Wire

2. If 12 volts DC and ground is present at panel but display is still dead replace printed circuit board.

### TROUBLE SHOOTING TANKS

**PROBLEM:** Displays "E" on one or more tanks but not all.

**TEST:**

1. Verify that levels in tanks do not match display.
2. Swap tank connectors on panel (i.e., if the problem is in "fresh" but grey is good, swap the fresh wire "blue" with the grey tank wire "grey". Retest tank functions to see if problem has also changed to another tank or is still in same tank.

**DIAGNOSIS:**

1. If step (2) still displays "E" on the same tank, replace printed circuit board.
2. If step (2) above displays "E" on different tank when the problem is an open connection in that tank wiring or pigtail. Repair or replace wiring or pigtail.
3. Open connection in either ground or signal wire will show "E" on tank display.

**PROBLEM:** Displays "F" on one or more tanks, others test good.

**TEST:**

1. Verify that levels in tanks do not match display.
2. Swap tank connections on panel as for previous problem. Retest tanks to see if problem has also changed to another tank or is still in the same tank.

**DIAGNOSIS:**

1. If step (2) above still displays "F" on the same tank, replace printed circuit board.
2. If step (2) above displays "F" on different tank, when the problem maybe a short in the wiring. A signal wire shorted to ground will display "F" on the panel. Repair or replace wiring.

**PROBLEM:** False readings (i.e., 1/3 or 2/3 indication in an empty tank).

**TEST:**

1. Verify tank is empty.
2. Open pigtail ground wire (white).
3. Check probe placement in tank. This very critical in single wire systems. **See placement diagrams.**

**DIAGNOSIS:**

1. If display changes to "E" after step (2) above and probes are not placed correctly abandon and install probes in the proper position.
2. Retest tank.

### TROUBLE SHOOTING LPG

**PROBLEM:** Display indicates "E" all the time.

**TEST:**

1. Verify tank is not empty.
2. Verify wire from 90 OHM sending unit to orange wire on back of panel is not shorted to ground.
3. Check sending unit for damage or sticking.

**DIAGNOSIS:** 1. Add gas to tank and retest.

## Monitor Panel

2. Run continuity test on wire, end to end and to system ground (short test).
3. Replace sending unit if found defective.

**PROBLEM:** Display indicates "F" all the time

**TEST:** 1. Disconnect orange wire. If display is "E", problem is in wiring or sending unit.

**DIAGNOSIS:** 1. If problem is in wiring or sending unit as indicated above, check for open connection or bad sending unit.  
2. If display still indicates "F", replace printed circuit board.

## K101 PIGTAIL TEST PROCEDURE

The K101 pigtail can be tested with an OHM meter as follows:

Red to Orange - 0 OHMS

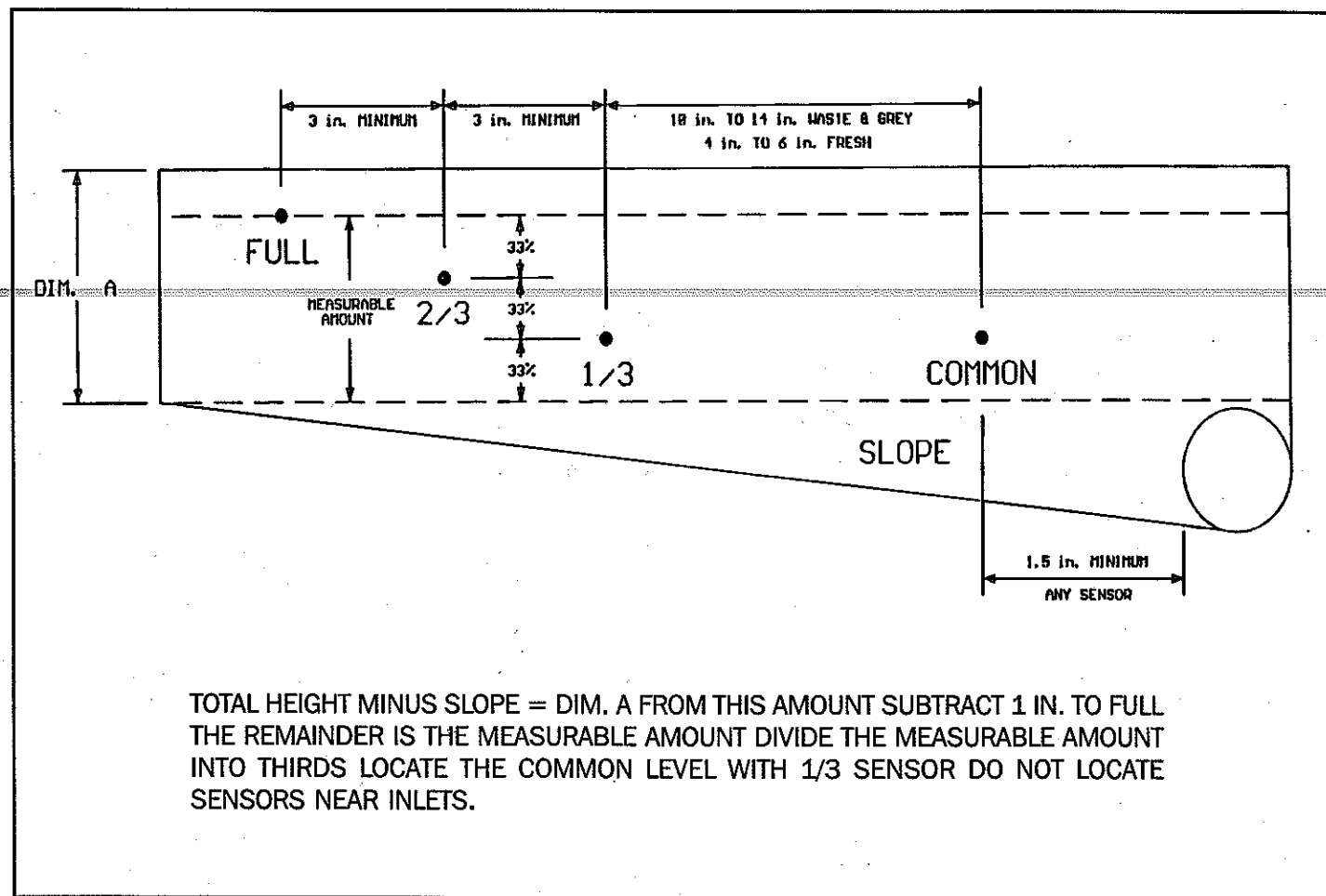
Red to Green - 68K OHMS +/-5%

Red to Yellow - 188K OHMS +/-5%

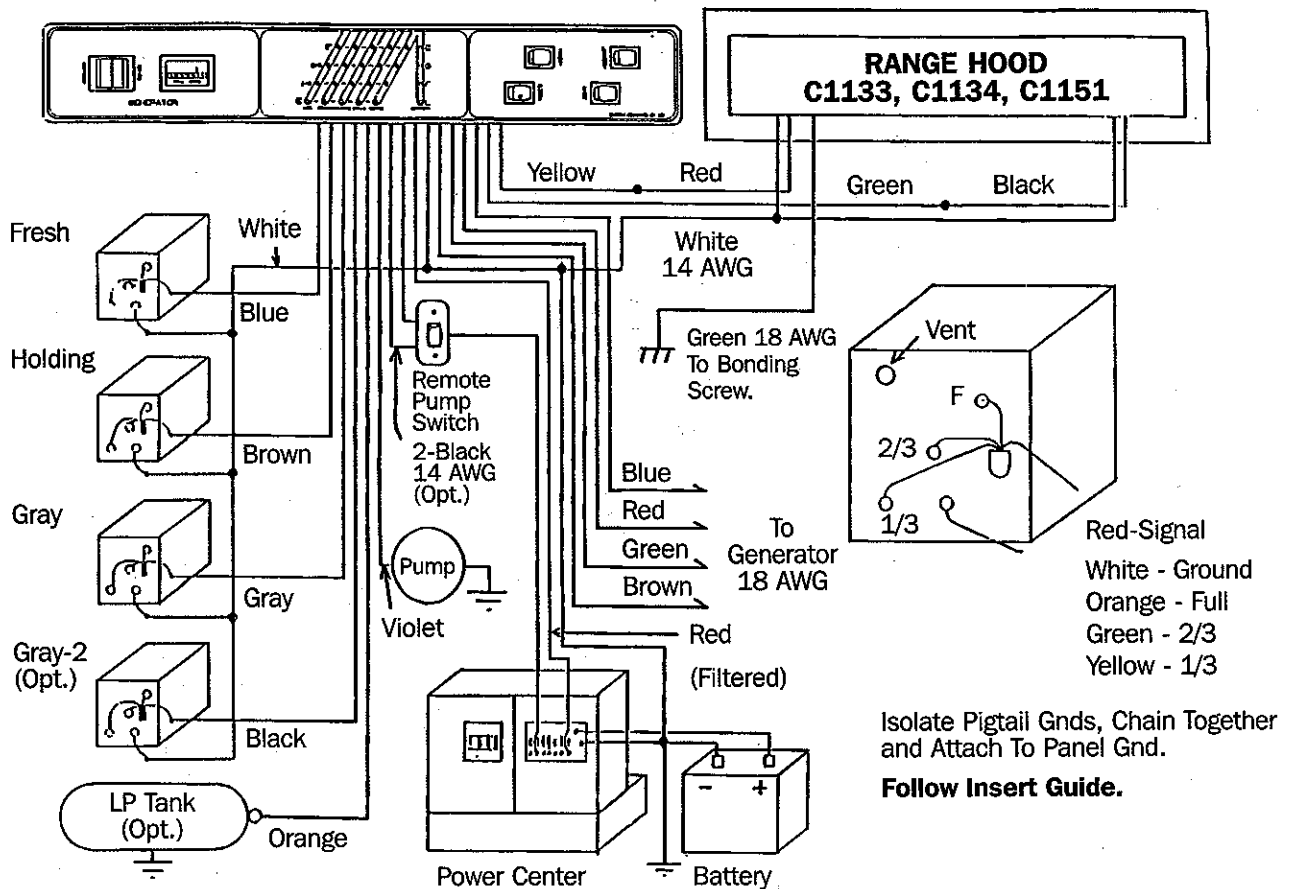
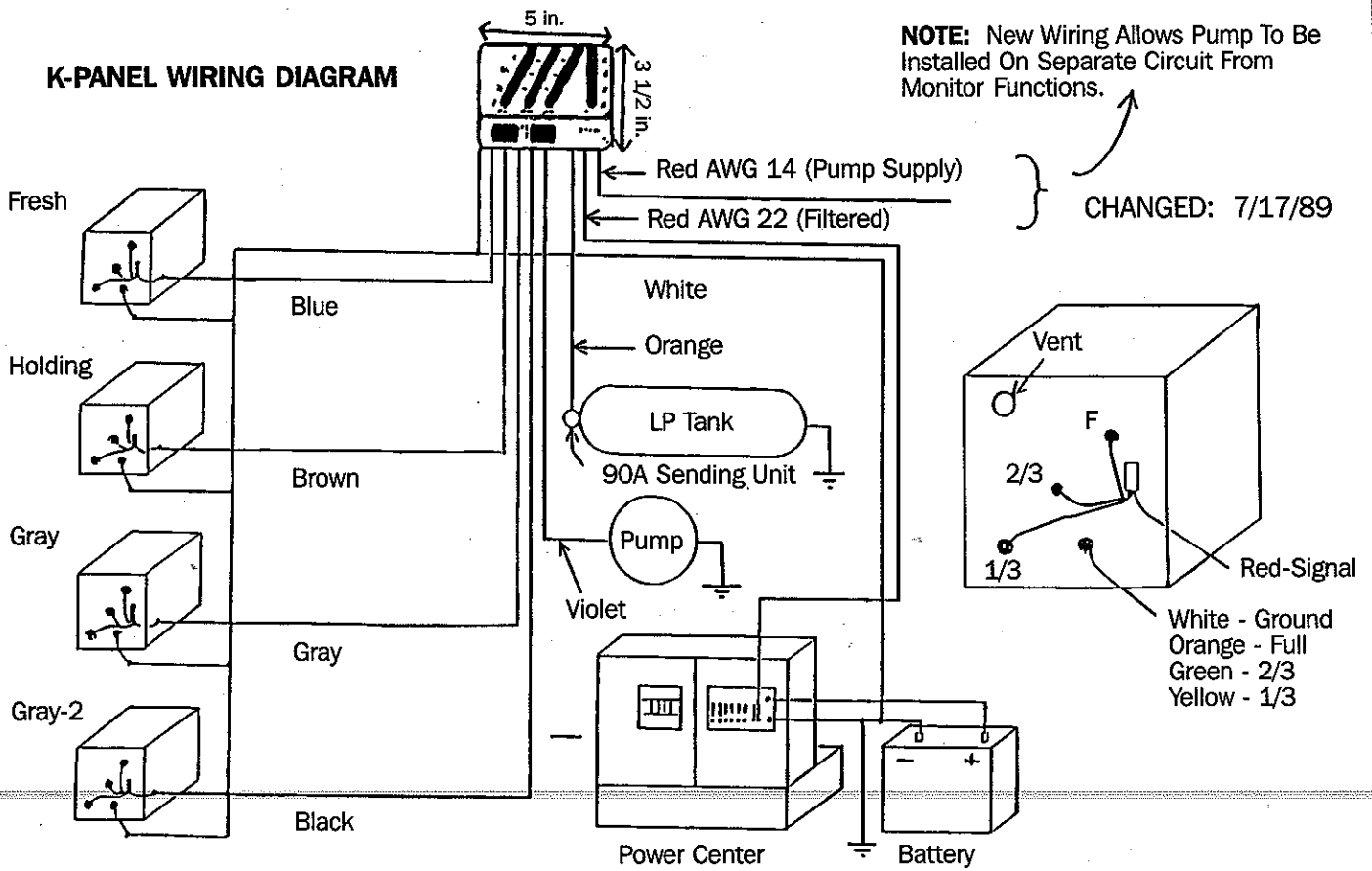
**NOTE:** Do not short fresh tank probes with jumper wires. Water test or use a 43K OHM resistor for this testing.

Replace only defective components i.e., PCB/Switch/Pigtail

**KIB Technical: Phone: (219) 262-0518 and Fax:(219) 262-5172**

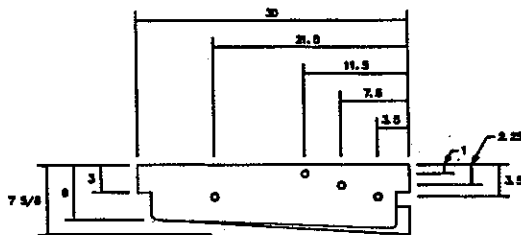


# K-PANEL WIRING DIAGRAM

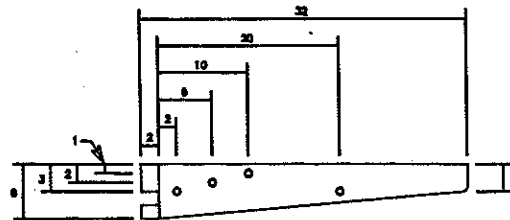


### HOLDING TANK PROBE LOCATION

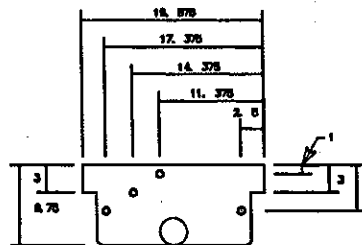
Recommend the use of templates - aluminum or plywood.  
All dimensions given are in inches.



H-350 / 116-H - H-607 / 264-H

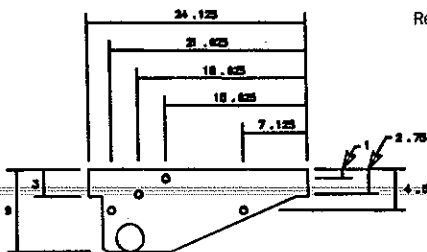


H-166 / 120-H

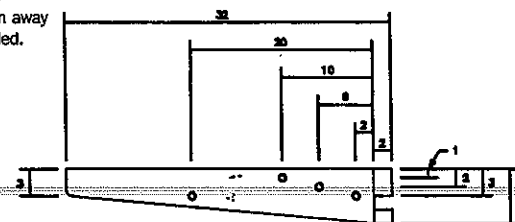


H-86 / 118-H

Reverse probe level position away from toilet inlet as needed.

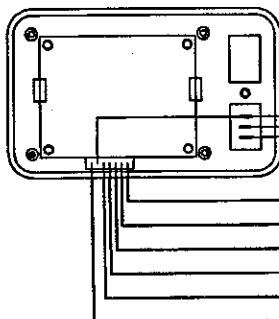


H-304 / 113-H  
H-140 (Opposite) / 119-H



H-167 / 114-H

### MICRO MONITOR



- White - Ground - Converter
- Violet - 14 AWG - Water Pump
- Red - 14 AWG - Pump Supply +12 VDC
- Pin 7 - Orange - LPG Tank
- Pin 6 - Blue - Fresh Tank
- Pin 5 - Black - Grey 2 Tank
- Pin 4 - Brown - Holding Tank
- Pin 3 - Grey - Grey Tank
- Pin 1 - Red - Filtered Positive (1 AMP Fuse)

| Model | Functions             | PCB         |
|-------|-----------------------|-------------|
| M20-F | F, BAT & W.P.         | SUBPCBM20-F |
| M21   | F,H,G,BAT, & W.P.     | SUBPCBM21   |
| M22   | F,H,G,LPG, BAT & W.P. | SUBPCBM22   |

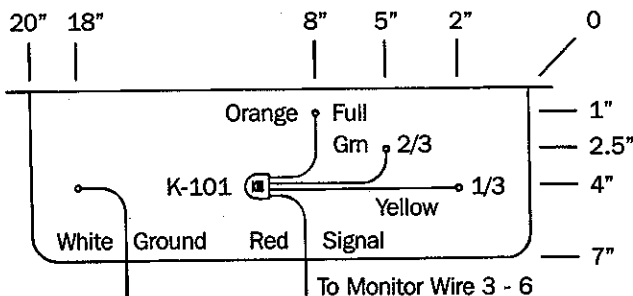
This is a Modular System.  
Replace Components Only.  
I.E. Pump Switch or PC. Board.

|     |                       |           |
|-----|-----------------------|-----------|
| M28 | F,H,G,G2, BAT, & W.P. | SUBPCBM28 |
|-----|-----------------------|-----------|

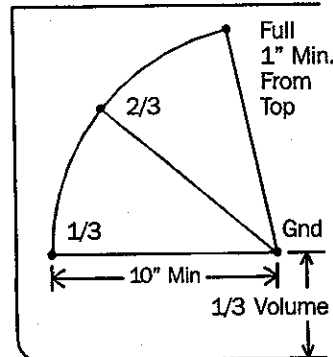
Pump Switch - P.N. - Swokled1

|     |                           |           |
|-----|---------------------------|-----------|
| M29 | F,H,G,G2, LPG,BAT, & W.P. | SUBPCBM29 |
|-----|---------------------------|-----------|

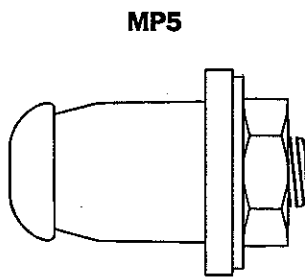
Resistor Pigtail - P.N. - K101



All Holding & LPG Tank Grounds Must Be Attached To Monitor Panel Ground.



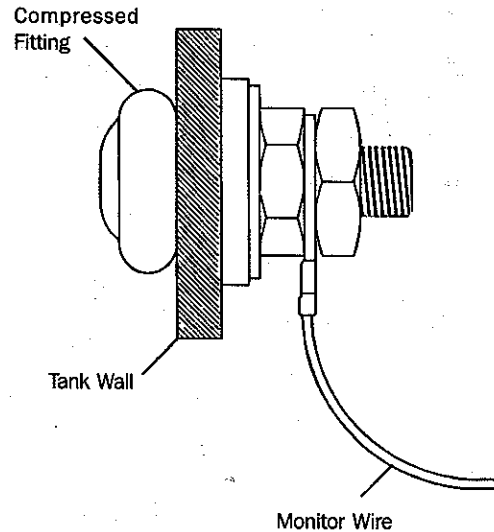
## MP5 INSTALLATION INSTRUCTIONS



MP5

1. Mark tank according to placement guide. It is best to make templates to standardize and speed this process.
2. Drill Holes
  - a. Use 3/8 in. Bit.
  - b. Drill at low speed.
    1. High speed drilling can cause burns.
    2. Remove any burns.
  - c. Drill at 90 degree angle to tank, angled holes can cause leaks.
3. Insert MP5 in hole.
4. Remove top nut.
5. Tighten bottom nut until snug.
  - a. Do not over-tighten.
  - b. It is best to use a nut driver or a torque adjustable screw gun.
  - c. Set torque at 100 in/oz.
6. Attach wire with nut removed earlier.
7. Seal exposed connections with a red battery spray or silicone sealer.
  - a. This is not necessary for tanks covered by underbelly.

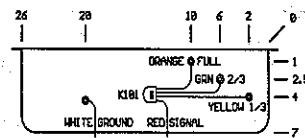
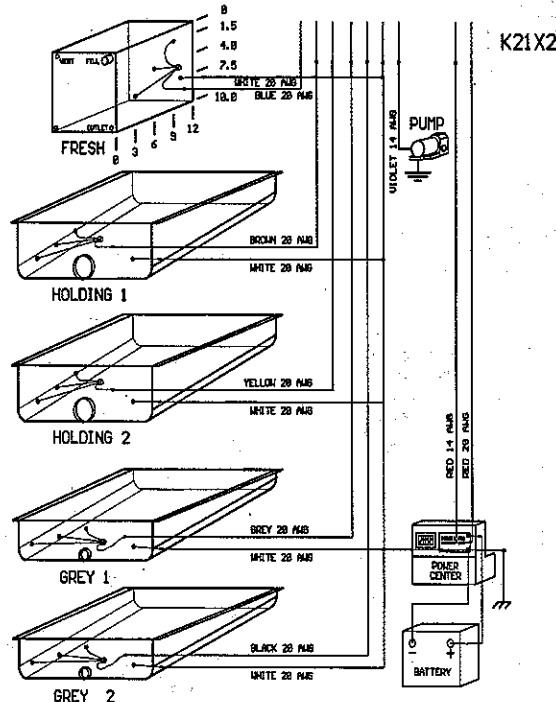
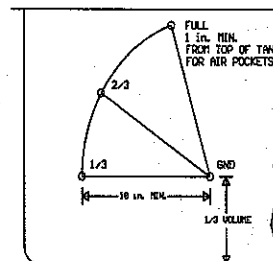
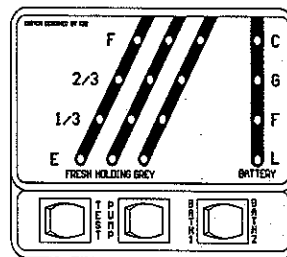
Installed MP5



| WIRING LEGEND                  |  |
|--------------------------------|--|
| RED 22 AWG - FILTERED POSITIVE |  |
| RED 14 AWG - POSITIVE VDC PUMP |  |
| VIOLET 14 AWG - PUMP           |  |
| WHITE - GROUND                 |  |
| BROWN - HOLDING 1 TANK         |  |
| YELLOW - HOLDING 2 TANK        |  |
| BLUE - FRESH TANK              |  |
| GREY - GREY 1 TANK             |  |
| BLACK - GREY 2 TANK            |  |

| REPLACEMENT PARTS                  |  |
|------------------------------------|--|
| PRINTED CIRCUIT BOARD - # SUBPCBK2 |  |
| PUMP SWITCH - # SAKLED1            |  |
| TEST SWITCH - # SAKDWC1            |  |
| BATH SWITCH - # SAK2-H             |  |
| RESISTOR PISTAL - # K101           |  |



PLACE 1/3 AND GROUND INSERT AT 1/3 VOLUME.  
 PLACE GROUND INSERT NO LESS THAN 10 IN. FROM OTHER  
 INSERTS IN HOLDING AND GREY TANKS. USE ALL AVAILABLE  
 SPACE.  
 ALL HOLDING & LPS TANK GROUNDS MUST BE ATTACHED TO  
 MONITOR GROUND.

## MP1 PROBE INSTALLATION

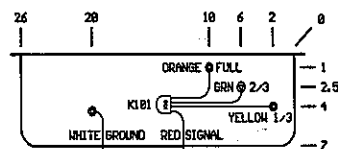
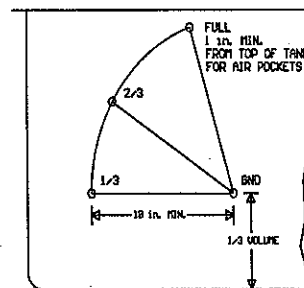
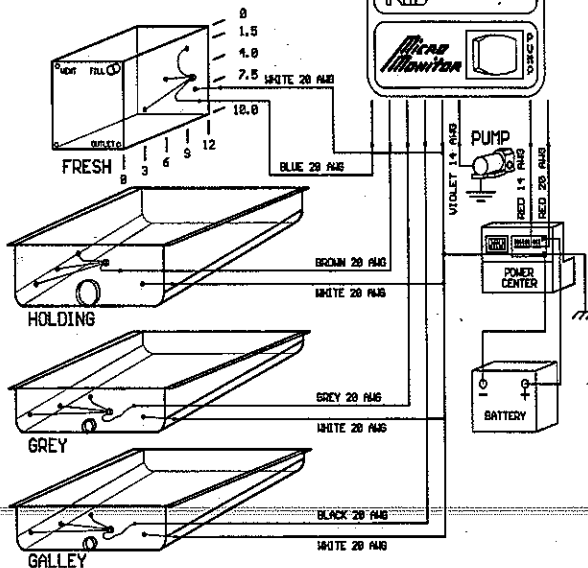
MARK TANK PER PLACEMENT GUIDE.  
 DRILL HOLES USING 3/8 in. BIT. DRILL AT LOW SPEED.  
 INSERT MP1 INTO HOLE.  
 REMOVE TOP 3/8 in. NUT.  
 TIGHTEN BOTTOM NUT UNTIL SNUG. DO NOT OVER TIGHTEN.  
 USE NUT DRIVER. DO NOT USE SCREW GUN.  
 ATTACH WIRE WITH NUT REMOVED EARLIER.  
 SEAL EXPOSED CONNECTIONS WITH RED BATTERY SPRAY OR  
 SILICON SEALER.

|                             |            |
|-----------------------------|------------|
| KIB enterprises corp.       |            |
| TITLE: K21X2 WIRING DIAGRAM |            |
| DRAWN BY: H.F. Fauson       | REV: A     |
| DATE: 6/25/90               | SHEET: 1/1 |

| M28 WIRING LEGEND |                         |
|-------------------|-------------------------|
| RED               | - FILTERED POSITIVE     |
| WHITE             | - GROUND                |
| GREY              | - GREY TANK             |
| BROWN             | - HOLDING TANK          |
| BLUE              | - FRESH TANK            |
| RED 14 AWG        | - PUMP SUPPLY - + 12VDC |
| VIOLET 14 AWG     | - WATER PUMP            |

| REPLACEMENT PARTS     |               |
|-----------------------|---------------|
| PRINTED CIRCUIT BOARD | - # SUBPCB128 |
| PUMP SWITCH           | - # SHOKLED1  |
| RESISTOR PISTAIL      | - # K101      |



PLACE 1/3 AND GROUND INSERT AT 1/3 VOLUME.  
PLACE GROUND INSERT NO LESS THAN 10 in. FROM OTHER INSERTS IN HOLDING AND GREY TANKS. USE ALL AVAILABLE SPACE.

ALL HOLDING & LPG TANK GROUNDS MUST BE ATTACHED TO MONITOR GROUND.

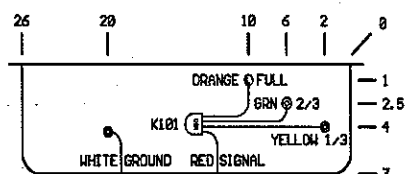
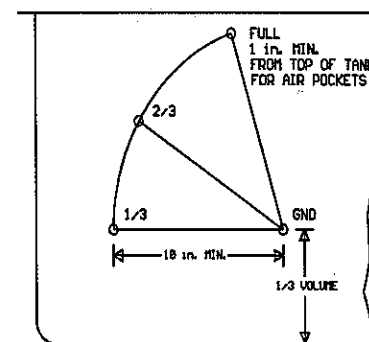
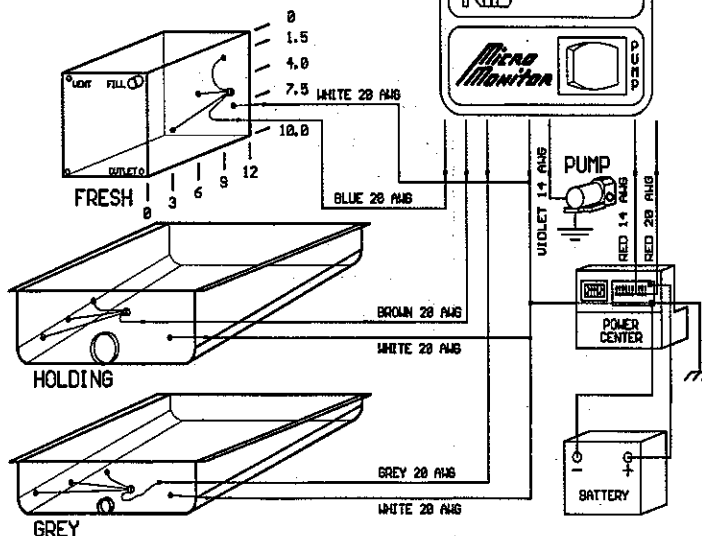
#### MP1 PROBE INSTALLATION

MARK TANK PER PLACEMENT GUIDE.  
DRILL HOLES USING 3/8 in. BIT. DRILL AT LOW SPEED.  
INSERT MP1 INTO HOLE.  
REMOVE TOP 3/8 in. NUT  
TIGHTEN BOTTOM NUT UNTIL SNUG, DO NOT OVER TIGHTEN  
\* USE NUT DRIVER, DO NOT USE SCREW GUN  
ATTACH WIRE WITH NUT REMOVED EARLIER  
SEAL EXPOSED CONNECTIONS WITH RED BATTERY SPRAY OR SILICON SEALER

| M28 WIRING LEGEND |                         |
|-------------------|-------------------------|
| RED               | - FILTERED POSITIVE     |
| WHITE             | - GROUND                |
| GREY              | - GREY TANK             |
| BROWN             | - HOLDING TANK          |
| BLUE              | - FRESH TANK            |
| RED 14 AWG        | - PUMP SUPPLY - + 12VDC |
| VIOLET 14 AWG     | - WATER PUMP            |

| REPLACEMENT PARTS     |               |
|-----------------------|---------------|
| PRINTED CIRCUIT BOARD | - # SUBPCB121 |
| PUMP SWITCH           | - # SHOKLED1  |
| RESISTOR PISTAIL      | - # K101      |



PLACE 1/3 AND GROUND INSERT AT 1/3 VOLUME.  
PLACE GROUND INSERT NO LESS THAN 10 in. FROM OTHER INSERTS IN HOLDING AND GREY TANKS. USE ALL AVAILABLE SPACE.

ALL HOLDING & LPG TANK GROUNDS MUST BE ATTACHED TO MONITOR GROUND.

#### MP1 PROBE INSTALLATION

MARK TANK PER PLACEMENT GUIDE.  
DRILL HOLES USING 3/8 in. BIT. DRILL AT LOW SPEED.  
INSERT MP1 INTO HOLE.  
REMOVE TOP 3/8 in. NUT  
TIGHTEN BOTTOM NUT UNTIL SNUG, DO NOT OVER TIGHTEN  
\* USE NUT DRIVER, DO NOT USE SCREW GUN  
ATTACH WIRE WITH NUT REMOVED EARLIER  
SEAL EXPOSED CONNECTIONS WITH RED BATTERY SPRAY OR SILICON SEALER