

Joe Latimer

Barrick Goldstrike Mines Inc.

Elko, Nevada

**GROUND MONITORS
AND
TRIP RELAYS**

Where are ground monitor systems used ?

- On all portable and mobile 3 phase mining equipment.
- Wheel mounted, Track mounted, Rail mounted, Skid mounted, or equipment that moves with power on.
- High voltage power distribution.

LAWS

National Electrical Code

Code of Federal Regulations, Title 30

National Electrical Code

250-188 (a) Grounding of systems supplying portable or mobile equipment.

250-188 (d) Ground-Fault detection and relaying.

250-188 (e) Isolation.

250-188 (f) Trailing cable and couplers.

250-188 (c) Ground-Fault current.

Code of Federal Regulations, Title 30

Parts 75 (Underground coal) and Parts 77 (Surface coal)

77.803 Fail safe ground check circuits on high-voltage
Resistance grounded systems.

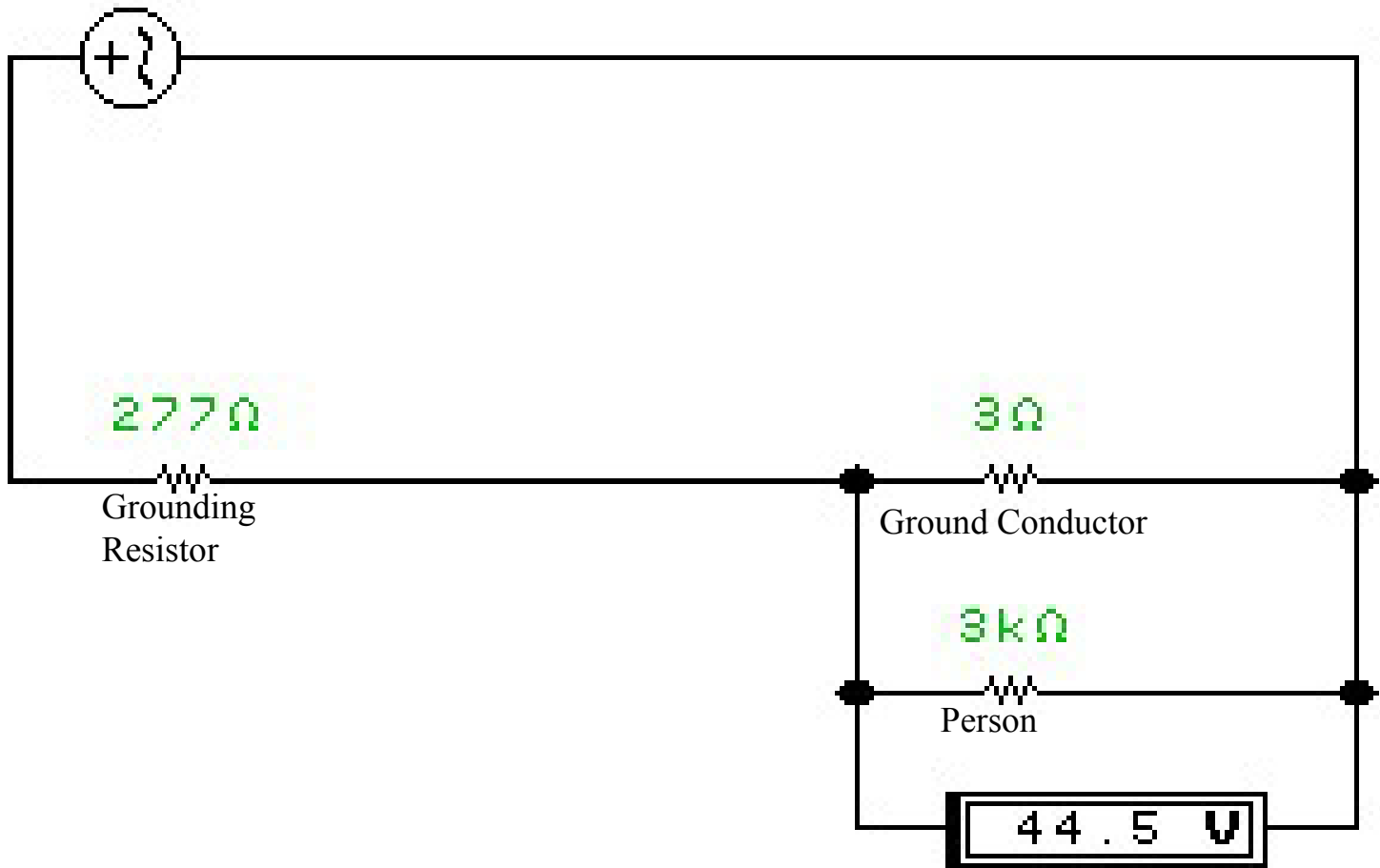
77.902 Low/medium-voltage ground check monitor circuits.

77.900 Low/medium voltage circuits serving portable or
mobile 3-phase alternating current equipment.

77.902-2 Approved ground check systems not employing
Pilot check wires.

77.801 Grounding resistors.

4160V



277Ω

Grounding Resistor

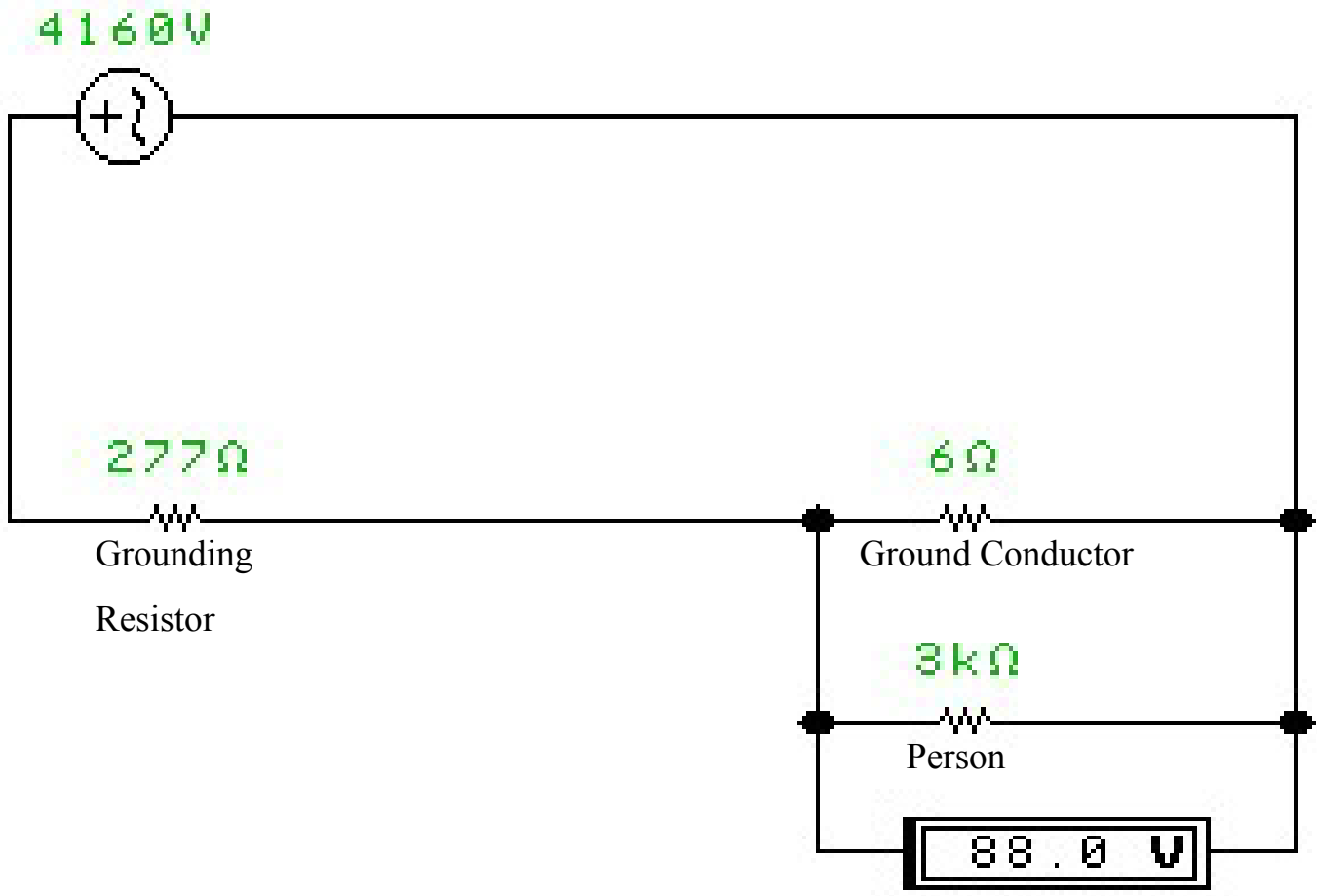
3Ω

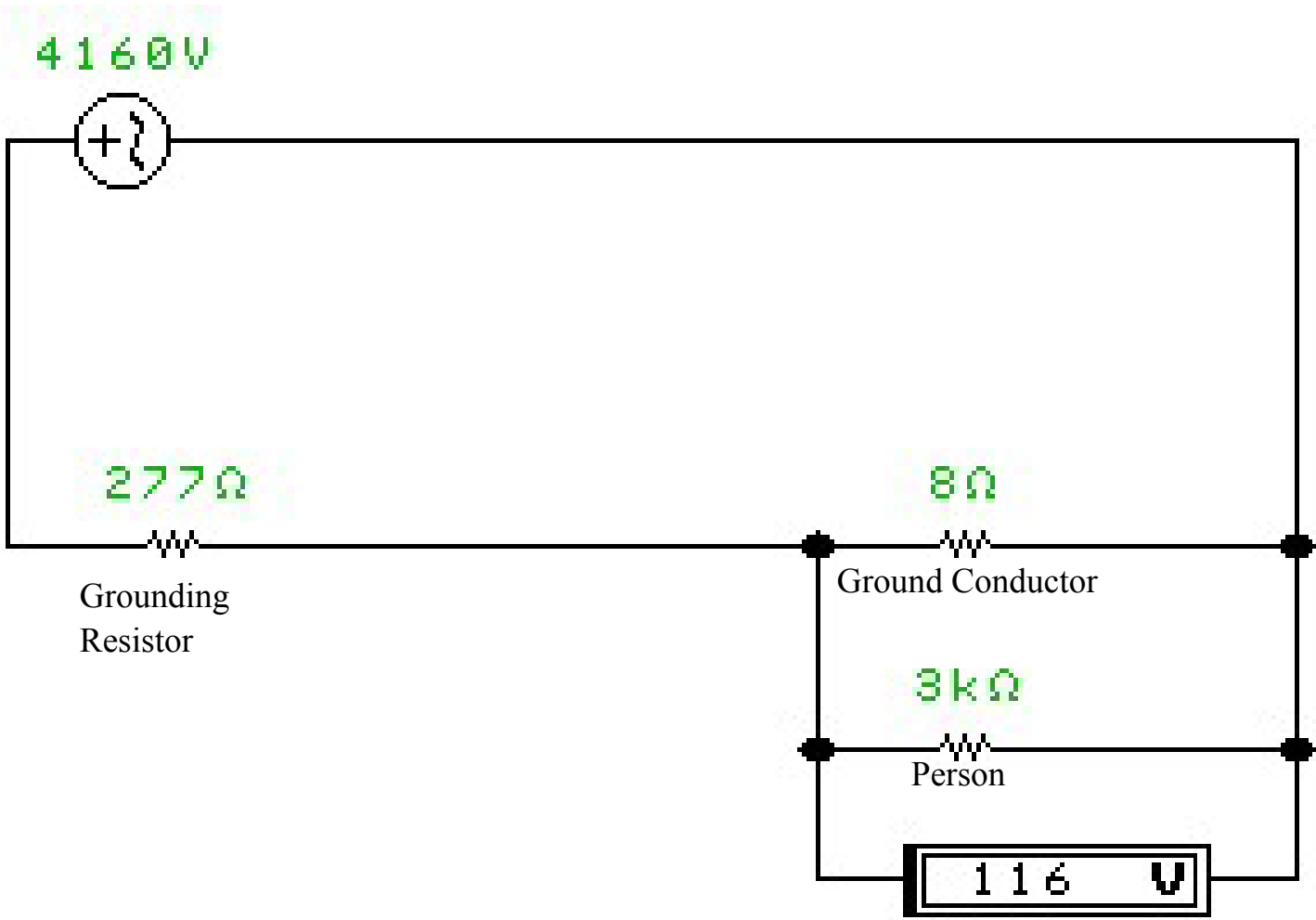
Ground Conductor

3kΩ

Person

44.5 V





Ground Monitors used at Barrick Goldstrike



OB/ensign

CALIBRATION

1. ADJUST ZERO POINTS - SET BOTH ZERO POINTS TO ZERO POLARITY CURRENTS - RESET INDICATOR.
2. ADJUSTMENT OF CURRENTS IN BOTH POLARITY CURRENTS - SET WITH ZERO POINT POT.



INSTRUCTIONS

1. IF CURRENT IS BELOW 2.5 AMP, ADJUST TEST SWITCH, ADJUST ZERO POT.
2. ADJUST CURRENTS IN BOTH POLARITY CURRENTS.
3. ADJUST CURRENTS OF CALIBRATOR TO TEST WINDS POLARITY CURRENTS. RESISTANCE INCREASES 2 AMP.

POLARITY

SELECT POLARITY SO THAT CURRENTS IN BOTH DIRECTION CURRENTS CORRECT CURRENT.

TRIP INDICATOR

TRIPPED RESET

TEST

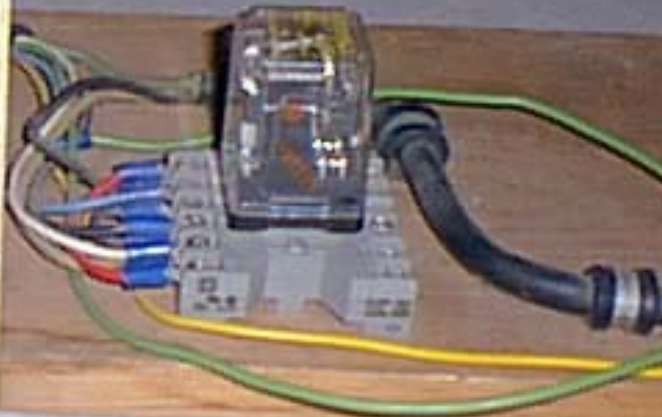
POLARITY SWITCH

WHEN LIGHT IS ON DC IS ENERGIZED

ZERO POT

ALERT POT

GROUND WHEN BATTERY





GM-300
GROUND CIRCUIT MONITOR

CIRCUIT CHECK

LOW RESET HIGH

MONITOR

LV CENTER RV

0 10 20 30 40 50 60 70 80 90 100

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WARNING
CAUTION
DANGER





MODEL
GM-200

LOW & MEDIUM VOLTAGE
UNDERGROUND CONTINUITY
GROUND MONITOR

AMERICAN MINE RESEARCH INC.
DESIGN AND MANUFACTURE OF MINE EQUIPMENT
I-77, EXIT 13 ROCKY GAP, VA. 24368
PH. (703) 928-1712

Flag Reset



Test



Power On



Trip Flag



Trans. On



Input Voltage-120 VAC

M.S.H.A. B.T.S. Acceptance
Sp. 07 1581AM -002

RELAY
Power Switch-400P-1100
Sensors-3000-VA2100040P-2000C
Control Board-410000-00





