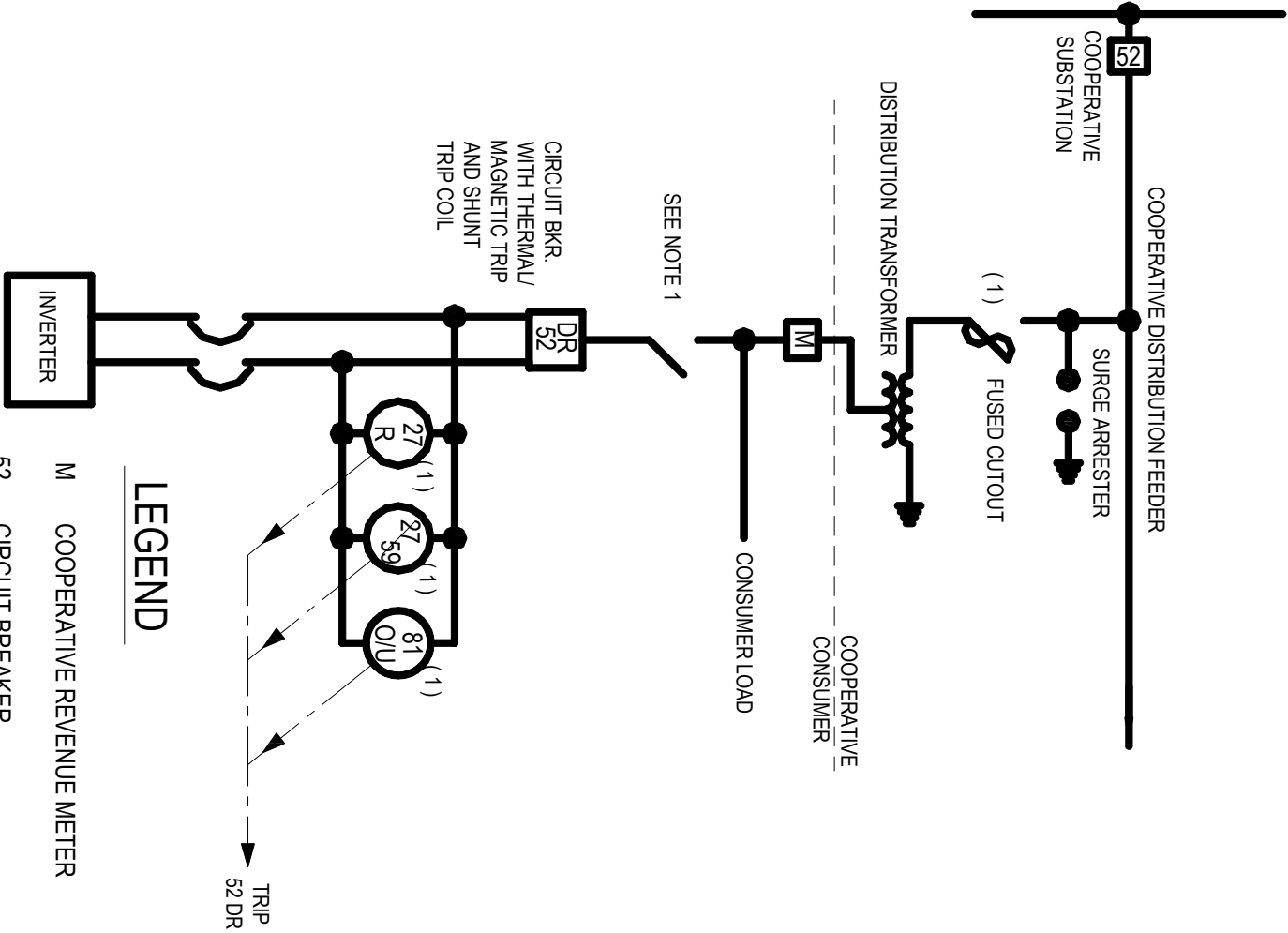


EXHIBIT 1

GENERAL PROTECTION REQUIREMENTS

Figure

- 1 Protection for a single-phase induction generator
- 2 Protection for a single-phase inverter



LEGEND

- M COOPERATIVE REVENUE METER
- 52 CIRCUIT BREAKER
- 27R INSTANTANEOUS UNDERVOLTAGE RELAY
- 27/59 TIME UNDER/OVER VOLTAGE RELAY
- 81 O/U OVER/UNDER FREQUENCY RELAY

NOTE:

1. SWITCH MUST BE PADLOCKABLE AND AVAILABLE TO THE COOPERATIVE AT ALL TIMES

TYPICAL PROTECTION EXAMPLE FOR SINGLE PHASE INVERTER

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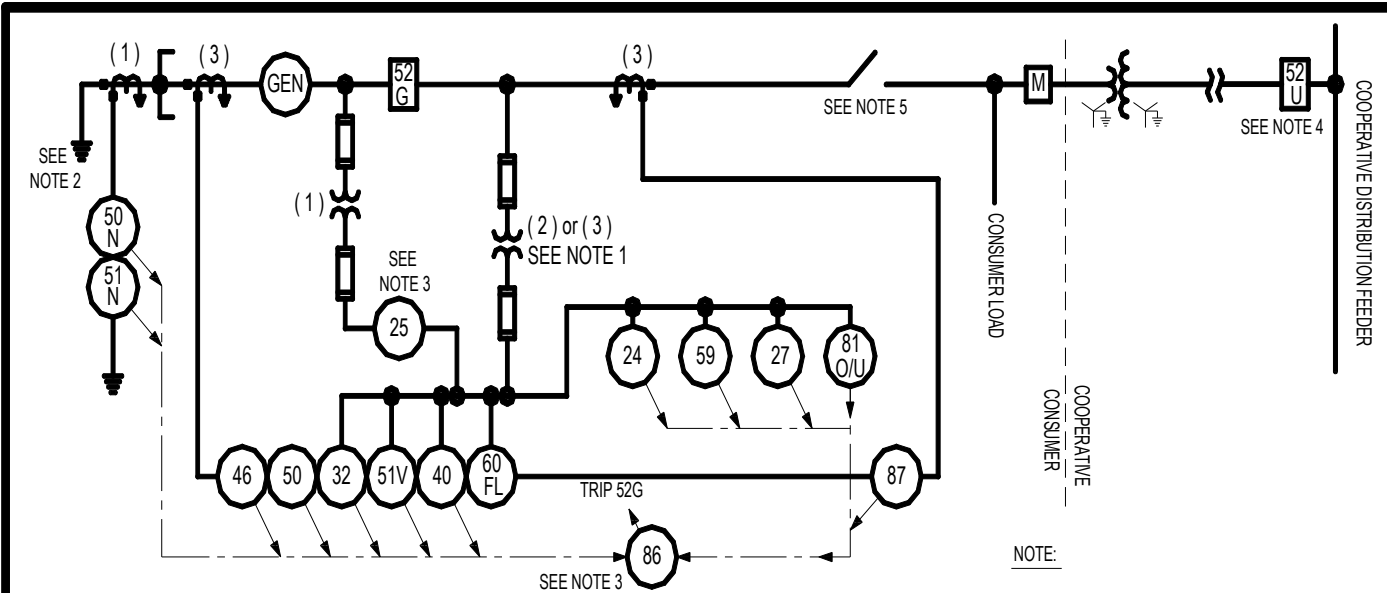
Date: 11-03-05

SOMERSET RURAL ELECTRIC COOPERATIVE

Somerset, PA

Revisions

RFG 1/9/06



NOTE:

1. VT's CAN BE CONNECTED WYE OR OPEN DELTA
2. GENERATOR GROUNDING SHOWN IS LOW IMPEDANCE, HIGH IMPEDANCE GROUNDING CAN BE USED IF DESIRED
3. RELAYING DEVICES SHOWN ARE ALL PART OF A MULTI - FUNCTION RELAY EXCEPT FOR DEVICES 25 AND 86. FUNCTIONS CAN BE INCREASED OR DECREASED AS DICTATED BY THE PARTICULAR APPLICATION
4. IF 52U IS RECLOSING CIRCUIT BREAKER, RECLOSING SHOULD BE SUPERVISED BY A SYNC - CHECK RELAY (DEVICE 25)
5. SWITCH MUST BE PADLOCKABLE AND AVAILABLE TO THE COOPERATIVE AT ALL TIMES

LEGEND

M	COOPERATIVE REVENUE METER	51N	TIME OVERCURRENT GROUND RELAY
PROTECTIVE RELAYS			
24	VOLTS / HZ RELAY	51V	VOLTAGE CONTROLLED TIME OVERCURRENT RELAY
27	UNDERVOLTAGE RELAY	59	OVERVOLTAGE RELAY
32	REVERSE POWER (ANTI - MOTORING) RELAY	60FL	FUSE LOSS DETECTION RELAY
40	LOSS OF FIELD RELAY	81 O/U	OVER / UNDER FREQUENCY RELAY
46	NEGATIVE SEQUENCE OVERCURRENT RELAY	86	LOCKOUT RELAY
50	INSTANTANEOUS OVERCURRENT RELAY	87	DIFFERENTIAL RELAY
50N	INSTANTANEOUS OVERCURRENT GROUND RELAY	CONTROL RELAYS :	
		25	AUTOMATIC SYNCHRONIZER OR SYNC - CHECK RELAY
		52	BREAKER

Revisions
RFG 1/9/06

SOMERSET RURAL ELECTRIC COOPERATIVE, INC
Somerset, PA

Drawn: DRF

Checked:

Approved: BH

Date: 11-03-05

TYPICAL PROTECTION SCHEME
FOR SMALL SYNCHRONOUS GENERATOR
INDUCTION GENERATOR
< 1 MW

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