SAMPLE DRAWING

SINGLE LINE DRAWING FOR LARGE DG'S
WITH PRIMARY LINE PROTECTION

REQUIRED PROTECTION

DEVS FUNCTION
25 SYNCH CHECK
27 UNDER VOLTAGE
32 DIRECTIONAL POWER
46 NEG SEQUENCE DC
50/51V INST & TD DC VOLT RES
50/51N INST & TD DC GROUND
59 OVER VOLTAGE
67 DIRECTIONAL DC
81 OVER/UNDER FREQ
87B BUS DIFFERENTIAL
87T TRANS DIFFERENTIAL
50/51 INST. & TIME DC.

GENERATOR PROTECTION

REQUIRED
OVER/UNDER VOLTAGE
OVER/UNDER FREQUENCY
NEGATIVE SEQUENCE
REVERSE POWER
VOLTAGE RESTRAINT OVER CURRENT
LOSS OF EXCITATION

RECOMMENDED
GROUND PROTECTION
DIFFERENTIAL PROTECTION

TWO MICROPROCESSOR RELAYS MAY BE USED.
IF ONE MICROPROCESSOR RELAY IS USED,
THE RELAY ALARM MUST TRIP THE BREAKER.

HIGH IMPEDANCE GROUNDED
GENERATORS WITH GENERATOR
PROTECTIVE RELAYING
SAMPLE DRAWING

SINGLE LINE DRAWING FOR DG'S
WITH SECONDARY LINE PROTECTION

REQUIRED PROTECTION

**DEV**
**FUNCTION**
25 SYNCH CHECK
27 UNDER VOLTAGE
32 DIRECTIONAL POWER
50/51V INST & TD DC VOLT RES
50/51N INST & TD DC GROUND
59 OVER VOLTAGE
67 DIRECTIONAL OC
46 NEG SEQUENCE DC
81 OVER/UNDER FREQ
50/51V INST & TD DC
87B BUS DIFFERENTIAL
87T TRANS DIFFERENTIAL

GENERATOR PROTECTION

REQUIRED
OVER/UNDER VOLTAGE
OVER/UNDER FREQUENCY
NEGATIVE SEQUENCE
REVERSE POWER
VOLTAGE RESTRAINT OVER CURRENT
LOSS OF EXCITATION

RECOMMENDED
GROUND PROTECTION
DIFFERENTIAL PROTECTION

TWO MICROPROCESSOR RELAYS MAY BE USED
IF ONE MICROPROCESSOR RELAY IS USED,
THE RELAY ALARM TRIP THE BREAKER.

**ISOLATION TRANSFORMER MAY NOT BE REQUIRED IF:**
A) HARMONIC REQUIREMENTS ARE MET AND TESTED AND
B) NEUTRAL REACTORS PROVIDE EFFECTIVELY
GROUNDED SYSTEM AND
C) FAULTS ON THE LIPA SYSTEM CAN BE
SELECTIVELY DETECTED.