

SAMPLE DRAWING

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

REQUIRED PROTECTION

DEV	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 D.C.

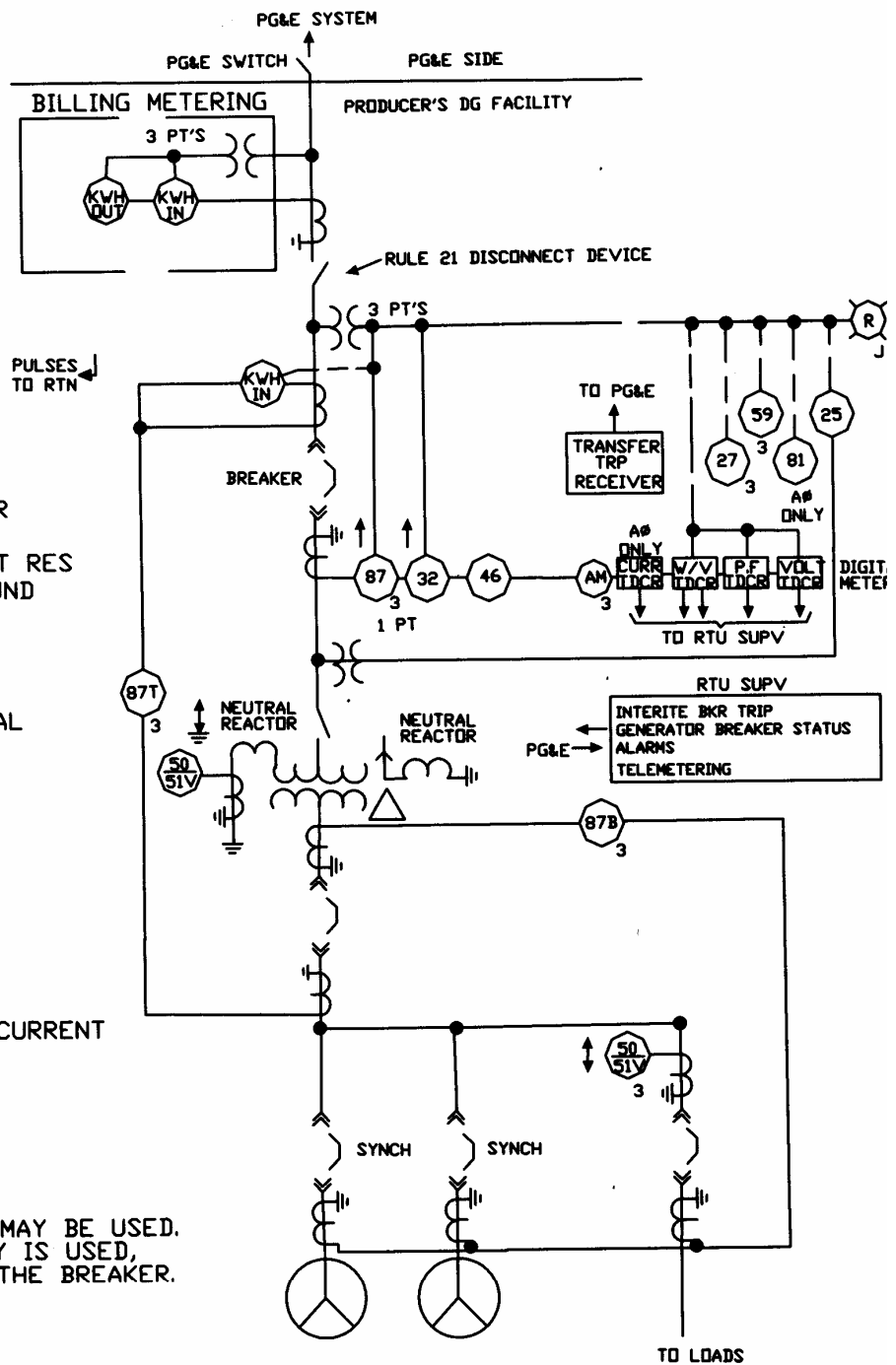
GENERATOR PROTECTION REQUIRED

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 DC
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:

- HARMONIC REQUIREMENTS ARE MET AND TESTED AND
- NEUTRAL REACTORS PROVIDE EFFECTIVELY GROUNDED SYSTEM AND
- FAULTS ON THE LIPA SYSTEM CAN BE SELECTIVELY DETECTED.

