


MODES OF GENERATOR OPERATION AND
INTERLOCKING REQUIREMENTS

1. THE INTERLOCKING SHALL PERMIT SYNCHRONIZING AND PARALLELING AS FOLLOWS:
- A. TWO (2) S.S. GENERATORS CONTINUOUS PARALLELED WITH ONE-ANOTHER.
 - B. TWO (2) S.S. GENERATORS PARALLELED WITH ONE-ANOTHER AND PARALLELED WITH ONE(1) OF THE TWO SHAFT GENERATORS FOR TRANSFER OF LOAD ONLY.
 - C. TWO (2) S.S. GENERATORS PARALLELED WITH EMERGENCY GENERATOR FOR TRANSFER OF LOAD AND AS DETAILED BY SPECIFICATIONS.
 - D. TWO (2) S.S. GENERATORS PARALLELED WITH SHORE POWER TRANSFORMER FOR TRANSFER OF LOAD ONLY.
2. THE INTERLOCKING SHALL PREVENT PARALLELING AS FOLLOWS:
- A. PARALLELING BOTH SHAFT GENERATORS WITH ONE-ANOTHER.
 - B. PARALLELING ANY OF THE SHAFT GENERATORS WITH THE EMERGENCY GENERATOR.
 - C. PARALLELING ANY OF THE SHAFT GENERATORS WITH THE SHORE POWER TRANSFORMER.
3. THE INTERLOCKING SHALL PERMIT AND LIMIT THE FLOW OF POWER AS FOLLOWS:
- A. SHAFT GENERATOR POWER TO:
SHAFT GENERATOR SWITCHBOARDS AND SHAFT GENERATOR MCL.
MAIN SHIPS SERVICE SWITCHBOARD
EMERGENCY SWITCHBOARD
 - B. SHIPS SERVICE GENERATOR POWER TO:
MAIN SHIPS SERVICE SWITCHBOARD
EMERGENCY SWITCHBOARD
SHAFT GENERATOR MCL.
 - C. SHORE POWER TO:
MAIN SHIPS SERVICE SWITCHBOARD
EMERGENCY SWITCHBOARD
SHAFT GENERATOR MCL.
 - D. EMERGENCY GENERATOR POWER TO:
EMERGENCY SWITCHBOARD
MAIN SHIPS SERVICE SWITCHBOARD
(NOT TO SHAFT GENERATOR MCL.)
4. TO SATISFY THE REQUIREMENTS OF PARAGRAPHS 1, 2 AND 3 ABOVE, THE INTERLOCKING SHALL OPERATE AS FOLLOWS:
- A. IF CB1 IS CLOSED, CB3 CAN ONLY CLOSE PROVIDING CB7 IS OPEN AND SYNCHRONIZATION HAS BEEN ACCOMPLISHED.
 - B. CB3 CAN CLOSE PROVIDING CB1 IS OPEN, WHETHER CB7 IS OPEN OR CLOSED.
 - C. IF CB10 + CB11 ARE CLOSED, ONLY CB9 OR CB12 CAN BE CLOSED.
 - D. IF BOTH CB10 + CB11 ARE CLOSED, CB7 CANNOT CLOSE.
 - E. EXCEPT BY DELIBERATE OVER-RIDING OF "KEYED" INTERLOCK, CB10 CANNOT CLOSE IF CB11 CLOSED AND VICA VERSA.
 - F. IF CB10 + CB11 ARE BOTH OPEN, CB7 CAN BE CLOSED ONTO A "DEAD" BUS IN THE SHAFT GENERATOR MCL.
 - G. IF CB5 AND / OR CB6 IS CLOSED AND EITHER CB10 OR CB11 IS CLOSED, CB7 CAN ONLY BE CLOSED PROVIDING SYNCHRONIZATION HAS BEEN ACCOMPLISHED.
 - H. CB4 CAN ONLY CLOSE UPON SYNCHRONISM OF ONE OR TWO S.S. GENERATORS WITH SHORE POWER. CB4 CANNOT CLOSE IF EITHER CB10 OR CB11 IS CLOSED.

LIST OF SYMBOLS

- 600V
1000KW
50, 60HZ
- GENERATOR - RATINGS AS SHOWN.
- 30 34, 575V. MOTOR - 30 HP.
- 20 34, 575V. RESISTIVE LOAD - 20 KW.
- 125 AT
- AIR CIRCUIT BREAKER, DRAWOUT TYPE, ELECTRICALLY AND MECHANICALLY OPERATED, STORED ENERGY EFFECT BY MOTOR OPERATED SPRING, 3-POLE.
- MOULDED CASE CIRCUIT BREAKER, THERMAL MAGNETIC, 125 AT, 3-POLE.
- MOULDED CASE CIRCUIT BREAKER, MAGNETIC ONLY, 3-POLE.
- 2-SPD
DOL
LVR
- MOTOR STARTER, 34, 600V, 2-SPEED. DIRECT-ON-LINE. LOW VOLTAGE RELEASE TO TRIP AT 80% VOLTAGE, AUTOMATIC RESET.
- 1-SPD
RV5
LVR
- MOTOR STARTER, 34, 600V, 1-SPEED. REDUCED VOLTAGE STARTING, 3-PHASE AUTO TRANSFORMER WITH 80, 65 + 50 % TAPS, CLOSED TRANSITION. LOW VOLTAGE PROTECTION, MANUAL RESET. FOR MOTORS STARTING ON SHAFT GENERATORS AND S.S. GENERATORS ABOVE 40 HP OR 250A LRC AND FOR MOTORS STARTING ON EMERGENCY GENERATOR ABOVE 20HP OR 126 A LRC.
- DISTRIBUTION POWER TRANSFORMERS WITH RATINGS AS SHOWN ON THIS DRAWING.
3-SINGLE PHASE UNITS DELTA-DELTA CONNECTED.
- THREE (3) PHASE ISOLATION TRANSFORMER < TOPAZ OR EQUAL >
- 5KV/120V
- GROUND FAULT DETECTOR WITH VISUAL AND AUDIBLE ALARMS - "PUSH TO TEST".
- PT PREFERENTIAL TRIP DEVICE.
- RS1 RUN & STOP INDICATION ONLY.
- RSO RUN, STOP & OVERLOAD INDICATION ONLY.
- SSR START & STOP CONTROL WITH RUN INDICATION ONLY.
- SSRO START & STOP CONTROL WITH RUN, STOP & OVERLOAD INDICATION.
- SFSR SLOW, FAST, & STOP CONTROL WITH RUN INDICATIONS.
- HTLO TEMPERATURE CONTROLLER.
- EM1 EMERGENCY SHUTDOWN - ONE SHUTDOWN BUTTON TO CONTROL ALL ASSOCIATED EQUIPMENT. NOTE: MCC MANUFACTURER TO INTERLOCK ALL ASSOCIATED EQUIPMENT TO ONE POINT.
- EM2 EMERGENCY SHUTDOWNS - SAME NOTES AS EM1.
- SD SHUTDOWN BUTTON.
- M MANUAL START CONTROL.
- HOA HAND-OFF-AUTO SELECTOR CONTROL.
- OA OFF-AUTO SELECTOR CONTROL.
- SPR STOP BUTTON WITH POWER AVAILABLE & RUN INDICATION ONLY.
- SRT STOP BUTTON WITH RUN INDICATION ONLY.

NOTE: ALL LOCAL STOP/START STATIONS TO HAVE LOCKOUT CAPABILITIES.

3	AS FITTED	7/6/85
2	GENERAL REVISION	1/17/84
1	GENERALLY REVISED	JULY 24 1984
Rev No.	Revisions	Date
App'd/App'n	Date	
Contractor	STEEL BOAT & BARGE	
Entrepreneur	VITO CONSTRUCTION LTD.	
 Canadian Coast Guard Garde c6ti6re canadienne		
Vessel	1050 NAV-AID VESSEL	
Proj. Title	EL.POWER ONE LINE SCHEMATIC	
Date	Scale/Schedule	Rev. 3
Contract No.	101-603-8 OF 6	