

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. Δ
 - 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 M.C.C.
 - MAIN SHIPS SERVICE SWITCHBOARD
 - EMERGENCY SWITCHBOARD
 - B. SHIPS SERVICE GENERATOR POWER TO:
 - MAIN SHIPS SERVICE SWITCHBOARD
 - EMERGENCY SWITCHBOARD
 - SHAFT GENERATOR M.C.C.
 - C. SHORE POWER TO:
 - MAIN SHIPS SERVICE SWITCHBOARD
 - EMERGENCY SWITCHBOARD
 - SHAFT GENERATOR M.C.C.
 - D. EMERGENCY GENERATOR POWER TO:
 - EMERGENCY SWITCHBOARD
 - MAIN SHIPS SERVICE SWITCHBOARD
 - (NOT TO SHAFT GENERATOR M.C.C.)
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 VICE VERSA.
 - F. IF CB10 + CB11 ARE BOTH OPEN, CB7 CAN BE CLOSED ONTO A "DEAD" BUS IN THE SHAFT GENERATOR M.C.C.
 - 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

- GENERATOR - RATINGS AS SHOWN.
- 3 ϕ , 575V. MOTOR - 30 HP.
- 3 ϕ , 575V. RESISTIVE LOAD - 20 KW.
- 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.
- MOTOR STARTER, 3 ϕ , 600V, 2-SPEED. DIRECT-ON-LINE. LOW VOLTAGE RELEASE TO TRIP AT 80% VOLTAGE, AUTOMATIC RESET.
- MOTOR STARTER, 3 ϕ , 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 >
- GROUND FAULT DETECTOR WITH VISUAL AND AUDIBLE ALARMS - "PUSH TO TEST".
- PT PREFERENTIAL TRIP DEVICE.
- RUN / STOP INDICATION ONLY.
- RUN, STOP / OVERLOAD INDICATION ONLY.
- START / STOP CONTROL WITH RUN INDICATION ONLY.
- START / STOP CONTROL WITH RUN, STOP / OVERLOAD INDICATION.
- SLOW, FAST, STOP CONTROL WITH RUN INDICATIONS.
- TEMPERATURE CONTROLLER.
- EMERGENCY SHUTDOWN - ONE SHUTDOWN BUTTON TO CONTROL ALL ASSOCIATED EQUIPMENT. NOTE: MCC MANUFACTURER TO INTERLOCK ALL ASSOCIATED EQUIPMENT TO ONE POINT.
- EMERGENCY SHUTDOWNS - SAME NOTES AS (E)1
- SHUTDOWN BUTTON
- MANUAL START CONTROL
- HOA HAND-OFF-AUTO SELECTOR CONTROL
- OA OFF-AUTO SELECTOR CONTROL
- STOP BUTTON WITH POWER AVAILABLE / RUN INDICATION ONLY
- 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
Δ	GENERALLY REVISED	JULY 24 1984
Rev No.	Revisions	Date

Contractor / Entrepreneur: STEEL BOAT & BARGE VITO CONSTRUCTION LTD.

Canadian Coast Guard / Garde c \hat{u} ti \grave{e} re canadienne

Vessel / Navire: 1050 NAV-AID VESSEL

Proj. Title / Titre: EL.POWER ONE LINE SCHEMATIC

Date / Date: 10-1-80
 Scale / Echelle: N/A
 Rev. 3
 Contract / Contr. No. / Entrepreneur Des. N $^{\circ}$: 10-1-803-8-01