A. LEGEND
MX Series Microprocessor-Based Control Panel

Standard Features:
- DT: Time Delay to SOURCE 1
- WT: Time Delay to SOURCE 2
- L1: SOURCE 1 Position Light
- L2: SOURCE 1 Position Light
- L3: SOURCE 1 Available Light
- L4: SOURCE 2 Available Light

Controls Power Supply (CP5)
- XE1, XE2: Control Transformer, SOURCE 1
- XN1, XN2: Control Transformer, SOURCE 2

B. OPERATION (OPEN TRANSITION)
When SOURCE 1 line voltage drops below the preset "Fail" values, the SOURCE 1 voltage sensing circuit initiates the engine start circuit. When SOURCE 2 line voltage and frequency reach the preset "Start" values, the MX controller initiates a transfer signal through the SCR-NO to operate the transfer operator. The load will be transferred to the OPEN position. After a set time delay, the MX controller initiates a transfer signal through the SCR-E to operate the transfer operator. The load will be transferred to the SOURCE 2 position. The transfer switch is mechanically locked. The SOURCE 1 limit switch awaits the next operation to SOURCE 1.

Test Switch
The Test Switch simulates a SOURCE 1 line failure when activated. To test, activate the Test Switch, thus allowing the transfer switch to transfer to the SOURCE 2 position. De-activate the Test Switch. The transfer switch will transfer to the SOURCE 2 position. Testing of this unit once a month is recommended. Disconnect Switch (DS)
When the Disconnect Switch is in the INHIBIT position, the circuits to the transfer operators are opened and the transfer cannot take place.

C. PARALLELING REQUIREMENTS
1. The unit is Factory set to accomplish transfer within 5 electrical degrees.
2. Requires a synchronon Governor with an operating frequency of 60 ± 0.2 Hz.
3. Requires a short trip breaker on the Generator set with no time exceeding 30ms.

D. OPERATION (CLOSED TRANSITION)
Zenith Closed Transition Transfer Switches are designed to transfer load between two available sources, without interrupting power to the load (make-before-break). Parallelizing of the two sources occurs within a predefined window of synchronization and lasts less than 100ms. The initial source is then disconnected.

To test the ATS, activate the test switch to drop out the EXTEND START Relays (2). The ATS closes into SOURCE 2 after the EXTEND Sync Check ensures the proper phase relationship between both sources. After the ATS closes into SOURCE 2, the SOURCE 1 limit switch becomes activated. The controller initiates a transfer signal through the SCR-NO which opens the ATS out of SOURCE 1. When the ATS has opened out of SOURCE 1, the SOURCE 1 limit switch activates. The ATS has now closed into the SOURCE 1 position without interrupting the load.

D. OPERATION (CLOSED TRANSITION)
Deactivating the Test switch initiates the retransfer. The ATS closes into SOURCE 1 only after the EXTEND Sync ensures proper phase relationship between both sources. After the ATS closes into SOURCE 1, the SOURCE 1 limit switch becomes activated. The controller initiates a transfer signal through the SCR-EO, which opens the ATS out of SOURCE 2. When the ATS has opened out of SOURCE 2, the SOURCE 1 limit switch activates. The ATS has now closed back into the SOURCE 1 position without interrupting the load.

The ATS defaults to an open transition transfer when SOURCE 1 source fails. This allows the generator set to be enabled. After the generator voltage and frequency reach the preset "Restart" values, the ATS transfers to SOURCE 2. Closed transition transfer is not possible with one source available. Option select "Open Transition" transfer via the optional Transition Mode Selector (TMS) for testing purposes.

E. (STD) GROUP PACKAGE
- A3, A4, CALIBRATE, COT DS, DT, DW, E, EL/P, KP, L1, L2, L3, L4, LN, P1, R50, S13, T, U, VI, W AND YEN

F. (EXT) OPTION PACKAGE
- A1, A1E, A3, A4, CALIBRATE, CDP DS, DT, DW, E, EL/P, KP, L1, L2, L3, LN, P1, P2, Q1, R6, R50, S13, T, U, VI, W AND YEN

G. (CONS) OPTION PACKAGE
- A1, A1E, A3, A4, CALIBRATE, DCP DS, DT, DW, E, EL/P, KP, L1, L2, L3, LN, P1, P2, Q1, Q5, R1, R6, R50, S13, T, U, VI, W AND YEN

H. (SENS) OPTION PACKAGE
- A1, A1E, A3, A4, CALIBRATE, CDP DS, DT, DW, E, EL/P, KP, L1, L2, L3, LN, P1, P2, Q1, Q5, R1, R6, R50, S13, T, U, VI, W AND YEN

I. (PSCS) OPTION PACKAGE
- A1, A1E, A3, A4, CALIBRATE, CDP DS, DT, DW, E, EL/P, KP, L1, L2, L3, LN, P1, P2, Q1, Q5, R1, R6, R50, S13, T, U, VI, W AND YEN

NOTES:
- In using 3 phase, 4 wire delta or open delta power supply (usually 120/240 volts, sometimes listed as 120/208 volts) with one leg having a grounded center, one leg active 150 to 208 volts to ground. When such a system is used it is necessary to connect the high leg to N2. DO NOT CONNECT 120 VOLT LOAD TO 208 VOLT LEG.
- 2. GROUNDING TERMINAL: A grounding terminal (GND) is provided. When installing in a type switch connects this terminal to the metal enclosure or an equivalent earthing ground.
- A WARNING - TO ENSURE AGAINST SHOCK OR ACCIDENT HAZARD, DISCONNECT ALL SOURCES OF SUPPLY BEFORE SERVICING.
- OPEN TRANSITION OPTION CAN BE SELECTED BY BOTH SOURCES AVAILABLE.
- A THREE PHASE UNIT MUST BE CONNECTED TO AN UNCONNECTED PHASE BUS.
- A THREE PHASE UNIT MUST BE CONNECTED TO A THREE PHASE SOURCE.
- A THREE PHASE UNIT MUST BE CONNECTED TO A THREE PHASE SOURCE.