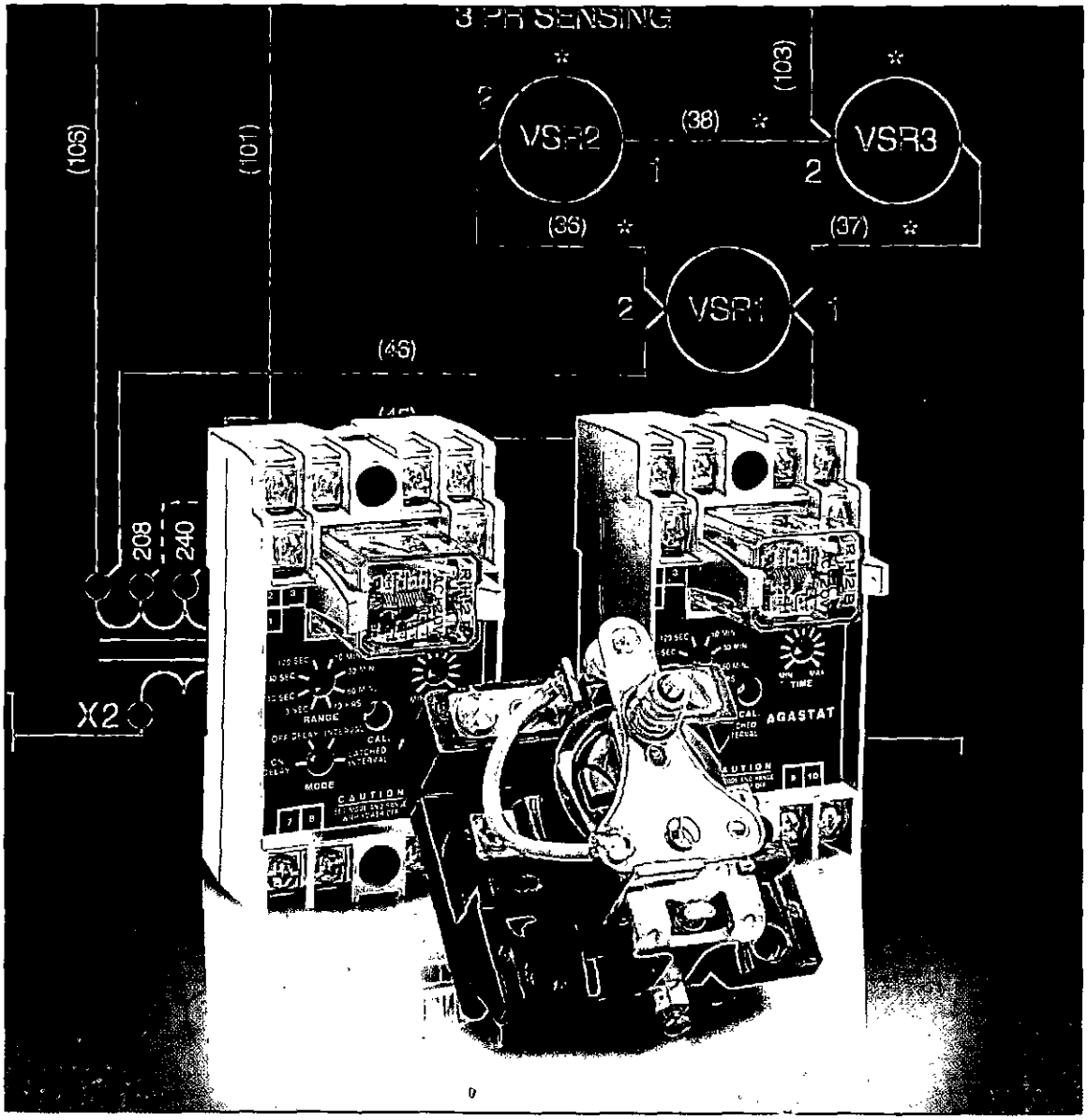
Westinghouse Transfer Switch Equipment

Relay Logic

Westinghouse brings you the state of the art in Relay Logic. With more features, more programmable functions and more on-board intelligence — it's the "smartest" move in electrical system control.



Cutler-Hammer

EATON

Westinghouse Transfer Switch Equipment

Relay Logic is available on the following switches in 2, 3 and 4 poles:

SWITCH	AMPERE RATING
ATHE	(100)
ATVE	(150-1000)

Westinghouse Relay Logic offers several standard features.

- Engine contacts wired to red color-coded terminal blocks for easy identification of connections.
- Limitless combinations of options available for superior flexibility in demanding job applications.
- Logic panel interconnects with power switching panel via keyed plug connectors to permit total isolation of controls for maintenance purposes.
- All wiring is hot ink stamped to match the wiring diagram supplied with each unit.
- Wiring to external pilot devices and customer connections is brought out to clearly identified terminal blocks.
- Solid neutral bar is supplied as standard on all 2 and 3 pole units.

Features and Accessories

DESIGN HIGHLIGHTS

- Test Pushbutton
- Full Phase Failure Protection
- Engine Start Contacts
- Control Circuit Disconnect
- Transfer Motor Disconnect
- Auxiliary Contacts

TRANSFER SWITCH FEATURES/ACCESSORIES

Westinghouse Transfer Switches offer the system designer and user the utmost in flexibility and versatility. All switches include, as standard, the basic features necessary for normal operation. Westinghouse offers a complete set of options and accessories that allow you to design a switch for a specific application. Most options can be installed in the field. The Westinghouse line provides a simple and inexpensive means to upgrade or retrofit a transfer switch already installed.

NOTE: For Features/Accessories not shown below, contact your local Westinghouse Transfer Switch Representative or the factory (800-354-2070) for assistance.

The following features are included or standard on all Westinghouse Automatic Transfer Switches:

TEST PUSHBUTTON (TPB)

Provides testing of transfer switch operation via the use of a momentary contact push button. Engine starting is initiated by simulation of a Normal Power Source loss. Transfer to the Emergency/Standby source will occur.

FULL PHASE FAILURE PROTECTION

Provides phase failure protection on each phase of the Normal Power Supply. Should the voltage drop below a pre-selected value on any phase, a signal is sent to start the generator and initiate a load transfer.

For Emergency/Standby sensing, see Optional Accessory 5.

ENGINE STARTING CONTACTS

Provides a 10A, 30VDC contact closure to engine starting upon failure of the Normal Power Source. This feature, specifically designed for low current applications, is wired to color-coded, red terminal blocks on the control panel for ease of identification.

CONTROL CIRCUIT DISCONNECT

Provides plugs to completely isolate the control circuitry for maintenance purposes.

TRANSFER MOTOR DISCONNECT

Provides a plug to disconnect control power to the transfer mechanism to allow testing of the transfer switch control logic circuitry without initiating load transfer.

For electrical selector switch transfer motor disconnect, see Optional Accessory 9.

AUXILIARY CONTACTS

Provide indication of switch position for each source via integrally mounted auxiliary switches. 30-1000 Ampere switches include two Form C contacts for each Power Source. For additional position indication contacts, consult the factory.

Note: Optional Accessories 12 and 32 may utilize standard auxiliary position contacts as indicated below. Auxiliary Relay Contacts are also available to perform a variety of functions. See Optional Accessory 14.

OPTIONAL ACCESSORIES

Listed below are Optional Features/Accessories that will allow you to customize a Westinghouse Automatic Transfer Switch to your particular application. All Features/Accessories are Underwriters Laboratories, Inc. listed unless noted otherwise.

Note: If a Feature/Accessory is chosen that is not UL listed, the switch will not be supplied with UL label.

1. TIME DELAY NORMAL TO EMERGENCY (TDNE)

Provides a time delay when transferring from the Normal Power Source to the Emergency/Standby Power Source. This Accessory does not affect the engine starting circuit. Timing begins when the source voltage of the emergency/standby power source appears. Adjustable 3 seconds-60 seconds.

14. RELAY AUXILIARY CONTACTS

Two Form C contacts are provided on Automatic Transfer Switches utilizing Relay Logic sensing.

- ❑ 14C Normal Source Relay Auxiliary Contacts (NRA) – Energized when the load is connected to the Normal Power Source Power Supply and normal voltage is present.
- ❑ 14D Emergency/Standby Source Relay Auxiliary Contacts (ERA) – Energized whenever Emergency/ Standby Source voltage is present.

16. INTEGRAL OVERCURRENT PROTECTION

Provides overcurrent protection integral to the Power Switching Device(s). Use of this Optional Accessory can, in many cases, eliminate the need for separate upstream overcurrent/short circuit protection and provide significant material, labor and space savings over other system layouts.

In addition to overcurrent protection, for safety purposes, selection of this Optional Accessory also includes a lock-out function that prevents further automatic transfer operation until the appropriate source is manually reset.

Note: 4 pole transfer switches include overcurrent protection only on the three power poles. See Optional Accessories 12L and 12M for trip lights. For detailed information regarding integral overcurrent protection, contact the factory.

THERMAL MAGNETIC OVERCURRENT PROTECTION

- ❑ 16B Overcurrent Protection on Both Power Sources.
- ❑ 16E Overcurrent Protection on the Emergency/Standby Power Source only.
- ❑ 16N Overcurrent Protection on the Normal Power Source supply only.

21. OPTIONAL TERMINALS

- ❑ 21A Refer to Wire Terminal Data, TB 29-925 for standard and alternate lugs available.

23. PLANT EXERCISER (PE)

Solid state, digital clock time with long-life lithium battery backup provides means for automatic testing of the Emergency/Standby Power Plant. This device is programmable to allow a maximum of 10 programs of automatic testing per week. Run time is fully adjustable with set points from 1 second-168 hours.

- ❑ 23C Engine Start/Run Only – Starts Emergency/Standby Power Plant and runs engine without load transfer. However, if the Normal Power Supply fails during the Exercise period, load transfer will occur.
- ❑ 23D Exercise With Load Transfer – Starts Emergency/Standby Power Plant and initiates load transfer. Automatically transfers back to the Normal Power Source at the end of the Exercise period.
- ❑ 23G Exercise With or Without Load Transfer – Programmable to allow selection of Engine Start/Run only, Exercise With Load Transfer, or a complete bypass of the Exercise system. Includes selector Switch marked "Engine Run", "Bypass", "Load Transfer".

24. BATTERY CHARGER (BC)

Fully automatic 5 Ampere float battery charge for engine cranking batteries. Uses ferroresonant transformer technology which is self-regulating and completely devoid of any complicated switching circuits. The charger comes in its own #304 stainless steel housing for separate mounting and includes a DC Ammeter allowing instant visual identification of charger output status. Unit requires a separate 100-135 VAC/60Hz power supply for hookup.

Note: Contact the factory for applications requiring a 220VAC/50Hz power supply.

- ❑ 24C Battery Charger with 12VDC output
- ❑ 24D Battery Charger with 24VDC output

29. TYPE OF OPERATION

Automatic operation is standard. Provides for automatic transfer and retransfer from source to source as dictated by the reset values of the transfer switch intelligence circuits.

- ❑ 29E Pushbutton Return to Normal – Automatic operation Normal to Emergency. Pushbutton operation Emergency to Normal. Includes fail-safe feature providing immediate retransfer to Normal if Emergency fails while in that position.
- ❑ 29G* Automatic/Manual Operation – Two-position selector switch (marked "Auto"/"Manual") permits selection of Automatic or Manual operation. Includes pushbuttons for manual operation when selector switch is in the "Manual" position.
- ❑ 29J Automatic or Pushbutton Return to Normal – Two-position selector (marked "Auto"/"Manual") permits selection of automatic or pushbutton operation from Emergency to Normal.

** Automatic Transfer Switch cannot be UL labeled if selected.*

32. DELAYED TRANSITION TIMER

- ❑ 32A Provides a time delay in the Neutral ("Off") position when the load is transferred in either direction to prevent excessive inrush currents due to out-of-phase switching of large inductive loads. Utilizes one normally open breaker contact.

33. SHUNT TRIP

Wired to terminal blocks for customer connection. Specify coil voltage desired (120VAC standard).

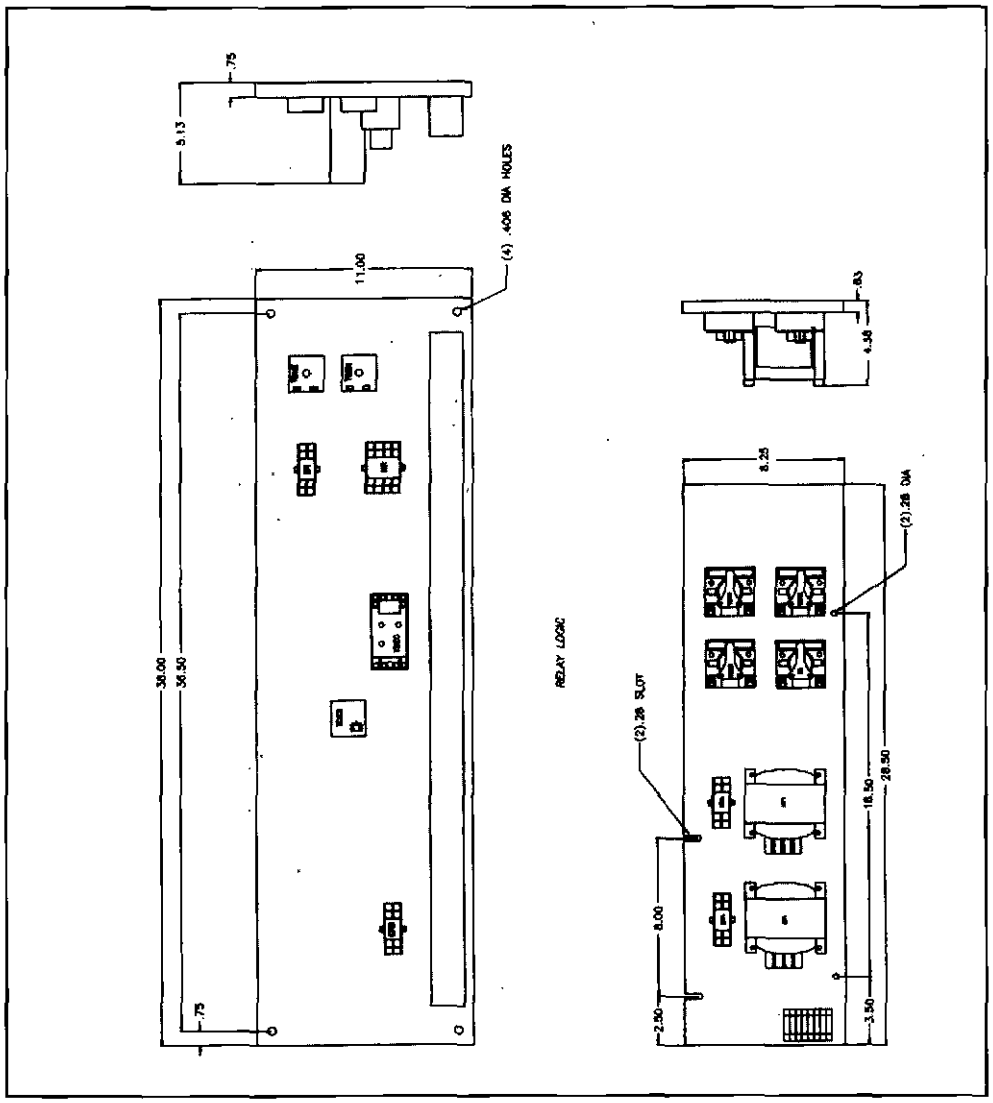
- ❑ 33A Supplied on Normal side
- ❑ 33B Supplied on Emergency side

34. EXTENDER CABLE

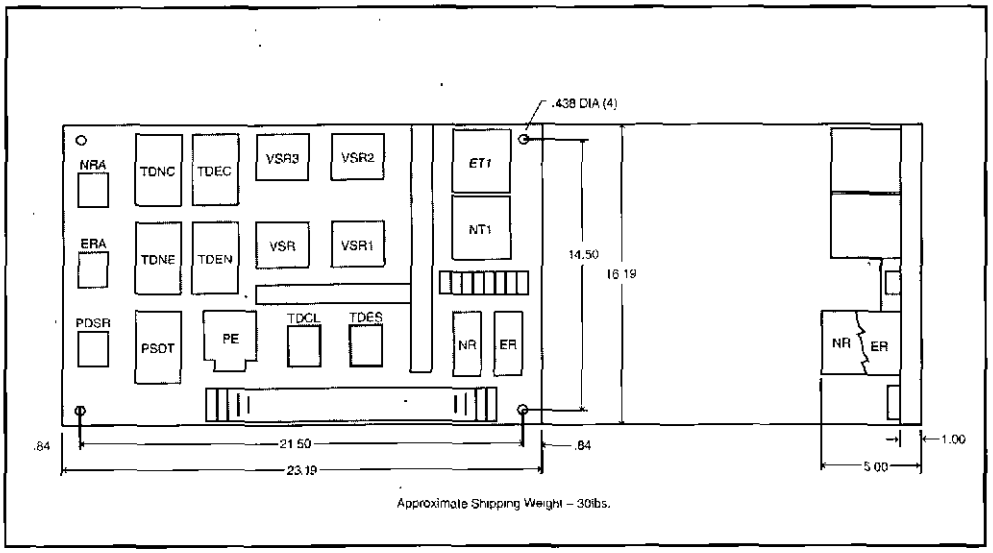
Permits remote mounting of intelligence circuitry to accommodate limited space applications.

- ❑ 34A 48 inches
- ❑ 34B 72 inches
- ❑ 34C 96 inches
- ❑ 34D 120 inches
- ❑ 34E 144 inches

Note: Special lengths available. Contact Cutler-Hammer.



Typical Logic Panel used on ATVE- Transfer Switches



Typical Logic Panel used on ATHE- Transfer Switches

Dimensions are approximate and should not be used for construction purposes.

2. TIME DELAY ENGINE START (TDES)

This option is for use when the Emergency/ Standby Source is an engine generator. It delays initiation of the engine start circuit in order to override momentary power outages or voltage fluctuations of the normal power source.

- ❑ 2B Adjustable .5-15 seconds
- ❑ 2C Adjustable 4-120 seconds

3. TIME DELAY EMERGENCY TO NORMAL (TDEN)

Delays the transfer from the Emergency/ Standby Power Source to the Normal Power Source to permit stabilization of the Normal Power Source before retransfer is made. Timing begins when the Normal Power Source appears. If the Emergency/Standby Source fails during timing, transfer to the Normal Power Source is immediate, overriding the time delay. Adjustable 24 seconds-480 seconds.

4. TIME DELAY ENGINE COOLDOWN (TDEC)

Permits the generator to continue to run unloaded after retransfer to Normal has occurred. Timing begins when transfer is made. Adjustable 1 second-10 hours.

5. EMERGENCY/STANDBY SOURCE MONITORING

Provides more precise voltage and/or frequency monitoring of the Emergency/ Standby Power Source. Relay prevents transfer from the Normal Power Source to the Emergency/Standby Power Source until that source is within a pre-selected range. In addition, when the switch is in the Emergency/Standby position and that source falls outside the monitored parameters, a load transfer is initiated to the Normal Power Source if it is present.

- ❑ 5B Single Phase Under Voltage/ Under Frequency Monitor – Provides single phase Voltage/ Frequency sensing.

6. ALTERNATE TEST OPERATORS

While all Westinghouse Automatic Transfer Switches are supplied with a Test Pushbutton as a standard Feature/ Accessory, certain applications and/or customer preferences dictate the use of an alternate test operator. When one of the following alternatives is selected, the standard Test Pushbutton is omitted.

- ❑ 6D Test Selector Switch (TSS) – Provides a two-position maintained contact marked "Auto"/ "Test". Tests operation of the Automatic Transfer Switch by simulating a loss of the Normal Power Source, causing the engine to start and initiate a load transfer to the Emergency/ Standby Power Source.
- ❑ 6H Four-Position Test Selector Switch (FPSS) – Marked "Test", "Auto", "Engine Start" and "Off". Permits four modes of Transfer Switch operation. The "Test" position simulates a failure of the Normal Power Source and functions like the standard Test Selector Switch. The "Auto" position is the regular operational mode. The "Off" position de-energizes the control logic relays and opens the engine start circuit. The switch will not operate nor will the engine start upon failure of the Normal Power Source. A white pilot light is provided to indicate the FPSS is in the "Off" position. The "Engine Start" position provides testing of the engine start circuit by closing the engine starting contacts and allowing the engine to run unloaded. The switch will not initiate a failure of the Normal Power Supply.

8. TRANSFER TIME DELAY BYPASS

Provides a manual pushbutton operated by-pass on the TDNE (Optional Accessory 1) and/or the TDEN (Optional Accessory 3) permitting the switch to be transferred to either Power Source without a time delay. This Optional Accessory is normally used during routine testing of the Emergency/ Standby system when it is not desirable to wait for the respective timers to complete their timing sequence before transfer.

- ❑ 8C Bypass TDEN push button (PBEN)
- ❑ 8D Bypass TDNE push button (PBNE)

9. MAINTENANCE SELECTOR SWITCH (MSS)

Marked "Off"/"On". Provides selector switch disconnection of control power to the Transfer Motor circuit thus allowing testing of the Transfer Switch Control logic circuitry without initiating load transfer. (Manual disconnection is standard on all Westinghouse Automatic Transfer Switches.) Positioning the MSS in the "Off" position isolates the control logic circuit from the Transfer Motor, permitting manual operation of the Transfer Switch or testing of logic circuitry without load transfer.

- ❑ 9B Maintained Contact MSS

12. INDICATING LIGHTS

SWITCH POSITION

- ❑ 12C Green Pilot Light (NL) indicates that the load is connected to the Normal Power Source marked "Normal". Switch utilizes 1 Ampere Power Switching Device auxiliary contact from the respective power sources.
- ❑ 12D Red Pilot Light (EL) indicates that the load is connected to the Emergency/Standby Power Source marked "Emergency". Switch utilizes 1 Ampere Power Switching Device auxiliary contact from the respective power sources.

SOURCE AVAILABILITY

- ❑ 12G White Pilot Light (SN) indicates voltage is present on the line side of the Normal Power Source marked "Normal Source".
- ❑ 12H White Pilot Light (SE) indicates voltage is present on the line side of the Emergency/Standby Power Source marked "Emergency Source".

TRIPPED CONDITION

(Available only when integral overcurrent protection selected-Optional Accessory 16.)

- ❑ 12L Amber Pilot Light (TN) indicates overcurrent trip condition on Normal side main contacts.
- ❑ 12M Amber Pilot Light (TE) indicates overcurrent trip condition on Emergency side main contacts.

FOR ADDITIONAL INFORMATION ON WESTINGHOUSE TRANSFER SWITCHES:

Bypass Isolation Transfer Switches 800-3000 Amperes	B 1221
Mini-SPB Transfer Switches 600-1200 Amperes	B 1222
ATS Solid State Logic	SA 12075
ATS Renewal Parts Catalog	SA 12077
Automatic, Manual Non-Automatic Transfer Switches Vertical Design 150-1000 Amperes	B 1223
Automatic, Manual, Non-Automatic Transfer Switches 30-4000 Amperes	PL 29-920
Automatic, Manual, Non-Automatic Transfer Switches 30-4000 Amperes	TB 29-925
ATS Renewal Parts Price List	PL 29-995
Combination Bypass Isolation and Automatic Transfer Switches 100-1000 Amperes	SA 11844
Drawout Transfer Switches 800-4000 Amperes	SA 11873

This brochure is published solely for information purposes and should not be considered all-inclusive. If further information is required, you should consult your nearest Cutler-Hammer salesperson.

Sale of product shown in this literature is subject to terms and conditions outlined in appropriate Cutler-Hammer selling policies or other contractual agreement between the parties. This literature is not intended to and does not enlarge or add to any such contract. The sole source governing the rights and remedies of any purchaser of this equipment is the contract between the purchaser and Cutler-Hammer.

NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OR WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ARE MADE REGARDING THE INFORMATION, RECOMMENDATIONS AND DESCRIPTIONS CONTAINED HEREIN.

In no event will Cutler-Hammer be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations and descriptions contained herein.

Cutler-Hammer
Westinghouse & Cutler-Hammer Products
Five Parkway Center
Pittsburgh, PA 15220
(412) 937-6100

SA 12076
JAN 95/TLG 1094
Printed in U.S.A.

EATON