ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *GE / Bently Nevada 3300/50-02-02-00-00* at our website: *Click HERE*

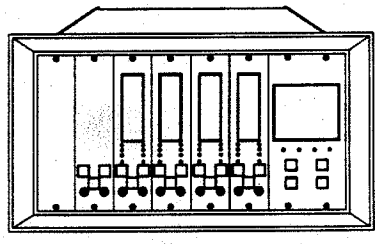
PART NO. 83870-01

3300/50 TACHOMETER

INCLUDES DUAL SETPOINT, ZERO SPEED, AND ROTOR ACCELERATION TACHOMETERS.

OPERATION MANUAL

BENTLY NEVADA



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

NOTICE

READ THE FOLLOWING BEFORE INSTALLING OR OPERATING EQUIPMENT

Bently Nevada Corporation has attempted to identify areas of risk created by improper installation and/or operation of this product. These areas of information are noted as **WARNING** or **CAUTION** for your protection and for the safe and effective operation of this equipment. Read all instructions before installing or operating this product. Pay particular attention to those areas designated by the following symbols.

WARNING

HIGH VOLTAGE PRESENT
COULD CAUSE SHOCK
BURNS OR DEATH

DO NOT TOUCH EXPOSED
WIRES OR TERMINALS

CAUTION

Machine Protection
Will Be Lost

SYMBOLS

Special symbols are used in the manual to illustrate specifics in the step-by-step processes. For example:



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

NOTICE



WARNING !

Bently Nevada Tachometers are not designed for use independently as, or a component of, a speed control or overspeed protection system.

Bently Nevada Tachometers do not provide protective redundancy and the response speed needed for reliable operation as a speed control or overspeed protection system.

Where provided, the analog proportional output is suitable for data logging or chart recording purposes only. Also, where provided, speed Alert setpoints are suitable for annunciation purposes only.

Failure to take the above warnings into account constitutes a misuse of the product and may result in property damage and/or bodily injury.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Blank Page

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FORWARD

This document is for control room personnel who operate the 3300 Monitoring System. The procedures are presented in step-by-step, graphic format.

RELATED DOCUMENTS

3300 System Overview, 80177

3300 System Installation Instructions, 80172

3300 System Troubleshooting, 80173

3300/10 Power Supply, 80174

3300/01 System Monitor, 80175

3300/50 Tachometer Maintenance, 83871-01

Dynamic Data Manager System, 46390-01

Keyphasor® is a registered trademark of Bently Nevada Corporation

Proximitor® is a registered trademark of Bently Nevada Corporation

Document No. 83870-01 First Printing: March 1989 Revision NC: March 1989

Copyright© 1989 Bently Nevada Corporation

All Rights reserved

No part of this publication may be reproduced, transmitted, stored in a retrieval system nor translated into any human or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without the prior written permission of the copyright owner,

Bently Nevada Corporation
P.O. Box 157
Minden, Nevada 89423 USA
Telephone 800-227-5514 702-782-3611
Telex 7400983 BNC UC
Fax 702-782-9253

Copyright infringement is a serious matter under
United States of America and Foreign Copyright Laws

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Blank Page

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CONTENTS

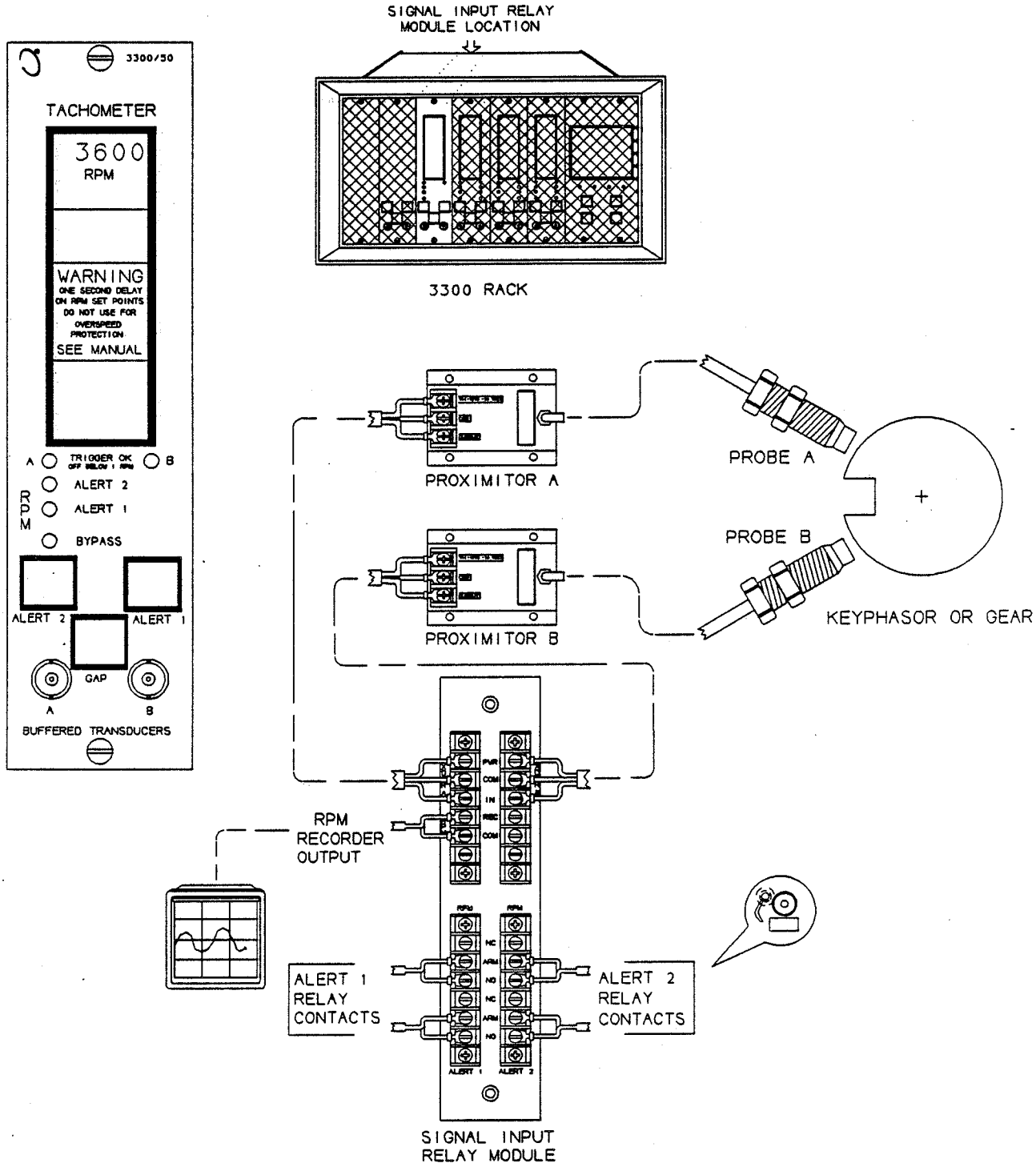
SECTION	TITLE	PAGE
	SYSTEM OVERVIEW	
1	DUAL SETPOINT TACHOMETER	1
2	ZERO SPEED TACHOMETER	2
3	ROTOR ACCELERATION TACHOMETER	3
4	MONITOR OPTIONS	4
5	PROGRAMMABLE OPTIONS	5
6	MONITOR FUNCTIONS	6
7	OK	9
	BYPASS	
8	DUAL SETPOINT TACHOMETER	10
9	ZERO SPEED TACHOMETER	11
10	ROTOR ACCELERATION TACHOMETER	12
	ALERT	
11	DUAL SETPOINT TACHOMETER	13
12	ZERO SPEED TACHOMETER	14
13	ROTOR ACCELERATION TACHOMETER	15
14	READ GAP VOLTAGE	16
	READ SETPOINTS	
15	DUAL SETPOINT TACHOMETER	17
16	ZERO SPEED TACHOMETER	18
17	ROTOR ACCELERATION TACHOMETER	19
18	READ PEAK HOLD	20
19	RESET PEAK HOLD	21
20	ENABLE (ZERO SPEED TACHOMETER)	22
21	SELF TEST	23
22	INDEX	27

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Blank Page

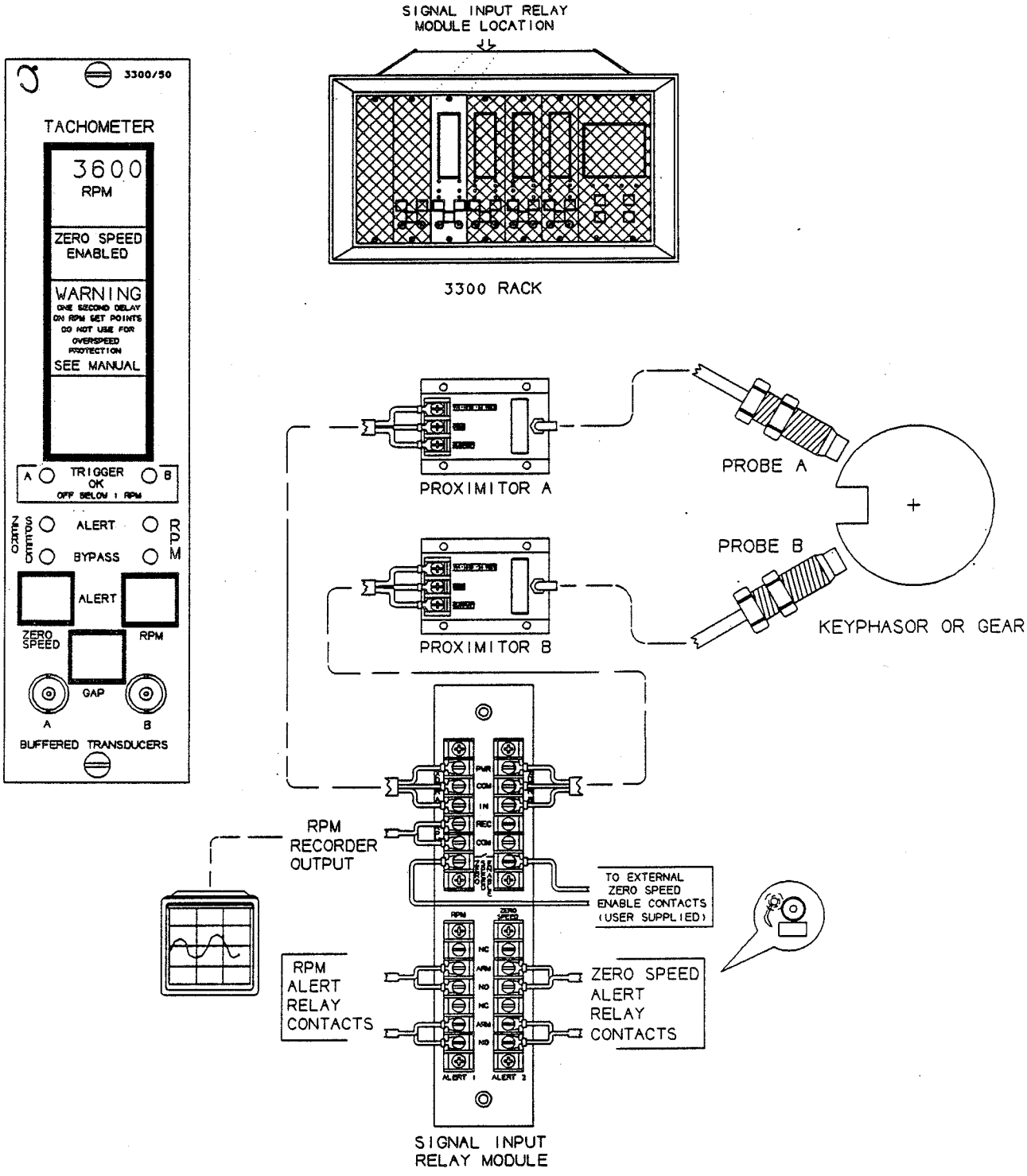
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1 DUAL SETPOINT TACHOMETER SYSTEM



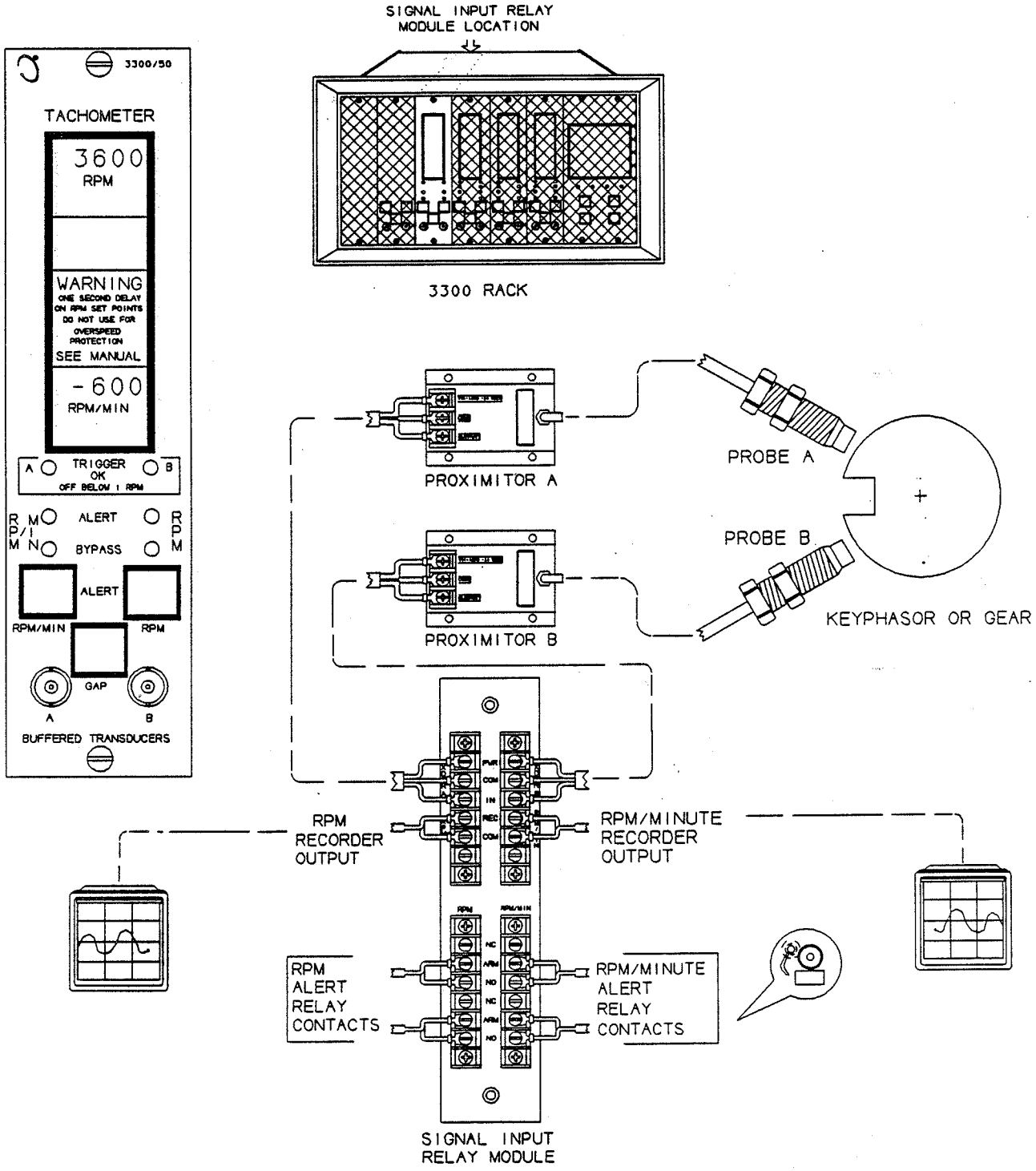
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2 ZERO SPEED TACHOMETER SYSTEM



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

3 ROTOR ACCELERATION TACHOMETER SYSTEM



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

4 MONITOR OPTIONS

TACHOMETER
PART NUMBER

	TACHOMETER TYPE	ALERT RELAYS	AGENCY APPROVAL	BARRIERS
3300/50	AA	BB	CC	DD
	01 = DUAL SETPOINT TACHOMETER 02 = ZERO SPEED TACHOMETER 03 = ROTOR ACCELERATION TACHOMETER	00 = NONE 01 = 5 AMP EPOXY SEALED 02 = 5 AMP HERMETICALLY SEALED	00 = NOT REQ'D 01 = CSA 02 = BASEEFA 03 = FACTORY MUTUAL	00 = NOT REQ'D 01 = WITH BARRIERS

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

5 PROGRAMMABLE OPTIONS

TRANSDUCER INPUT (NOTE 1)	SYSTEM KEYPHASORS * 7200/3000 PROXIMITOR MAGNETIC PICKUP	TRANSDUCER THRESHOLD MODE (NOTE 3)	MANUAL * AUTOMATIC
TRANSDUCER CONDITIONING HYSTERESIS	0.2 VOLTS * 0.5 VOLTS 1.0 VOLTS 2.0 VOLTS	ALERT MODES	* OVER ALERT UNDER ALERT * LATCHING NON-LATCHING
FIRST OUT ALERT (NOTE 2)	* ENABLED DISABLED	ALERT BYPASS	ENABLED * DISABLED
RECORDER OUTPUTS	* +4 TO +20 mA +1 TO +5 Vdc 0 TO -10 Vdc		

* OPTIONS SHIPPED FROM BENTLY NEVADA

NOTE 1: MAGNETIC PICKUPS ARE NOT ALLOWED FOR ZERO SPEED APPLICATIONS.

NOTE 2: ALL VERSIONS OF THE TACHOMETER DRIVE ONLY THE RACK FIRST OUT ALERT BUS. THIS MONITOR DOES NOT DRIVE THE RACK FIRST OUT DANGER BUS.

NOTE 3: THE ZERO SPEED TACHOMETER IS SHIPPED IN THE MANUAL THRESHOLD MODE. AUTO THRESHOLD IS NOT ALLOWED IN THE ZERO SPEED MONITOR. AUTO THRESHOLD WILL NOT WORK BELOW 5 Hz (300 RPM AT ONE EVENT PER REVOLUTION).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

6 MONITOR FUNCTIONS

ROTOR SPEED MONITORING - The Tachometer function provides continuous monitoring of shaft rotative speed. The Tachometer accepts input from either a proximity probe or magnetic pickup (not recommended). The Tachometer measures the time between Keyphasor pulses and calculates the rotor speed in revolutions per minute (RPM). The monitor displays the rotor speed on the front panel and provides a proportional voltage or current recorder output. The Tachometer also outputs Alert status via rear panel relay contacts for external annunciation.

ZERO SPEED - The 3300 Tachometer provides, as a factory installed option, a Zero Speed function. Zero Speed measurements are generally taken on turbines, generators and other rotating machinery with large rotors.

Zero Speed is a preselected shaft rotative speed that allows for proper engagement of the turning gear. Continuous shaft rotation during machine shutdown is imperative to prevent shaft bow that could lead to possible machine damage during startup.

The Zero Speed function requires inputs from two transducers. Voting logic between the two transducers minimizes false Zero Speed indication in the event of a transducer failure. When the Zero Speed function is enabled, and the preselected Zero Speed is reached, an Alert LED indicates the condition. Alert relay contacts are also provided for use with an external indicator such as an annunciator panel.

ROTOR ACCELERATION - The 3300 Tachometer provides, as a factory installed option, a Rotor Acceleration indicator. The Rotor Acceleration function provides an indication of a machine's rotative acceleration. The acceleration/deceleration information is displayed on the front panel. A recorder output, as well as Alert relay outputs are provided.

Rotor Acceleration is used with machinery during startup or shutdown. The original machine manufacturer's recommended ramp up or ramp down rate must be maintained to minimize possible damage.

PROBE GAP VOLTAGE - Probe gap is measured in negative DC voltage and is directly proportional to the gap between the face of a proximity probe and the surface being monitored. Probe gap voltage for each transducer is displayed on the front panel by pressing the GAP switch.

TRIGGER OK - The TRIGGER OK LEDs indicate the status of the transducer input signal, and the monitor. The TRIGGER OK LEDs remain on as long as the Tachometer is receiving valid input signals and the monitor is OK. The LEDs will extinguish when the input is less than 1 RPM or greater than 99,999 RPM. An invalid trigger will not cause the system OK relay to go NOT OK.

OK RELAY - The OK Relay is located on the Power Input Module. Every monitor in the rack must be OK or bypassed to energize the OK Relay.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

6 MONITOR FUNCTIONS (CONT)

ALERT - Pressing one of the Alert switches on the front panel of the monitor causes the corresponding Alert setpoint to be displayed on the front panel. When the particular Alert setpoint conditions have been met, the Alert LEDs will illuminate and the Alert relay contacts are activated.

FIRST OUT ALERT - A monitor with the First Out option selected flashes an Alert LED if that Alert was the first in the rack. Pressing the RESET switch acknowledges the First Out.

ALERT RELAYS - Monitor Alerts can be programmed for either latching or nonlatching modes. In the nonlatching mode, the alert resets automatically when the Alert no longer exists. In the latching mode, the Alert condition must be reset manually by pressing the RESET switch on the front panel of the System Monitor (or by closing the external reset contacts). The Alert will not reset if the Alert condition still exists.

ALERT BYPASS - An Alert can be bypassed using a switch located behind the front panel. When bypassed, an Alert condition no longer causes the Alert LEDs to illuminate or the relay to actuate. Alert bypass can be during maintenance. Alert Bypass is indicated by the front panel BYPASS LED. Other front panel functions are not affected by Alert Bypass. This function can be disabled using a programmable jumper within the monitor.

MONITOR BYPASS - The monitor can be completely bypassed using the Monitor Bypass switch located behind the front panel. When bypassed, the monitor is completely nonfunctional, and can be removed from the system monitoring loop. After this function is activated, the normal system OK operation (OK Relay) will be restored for the remaining active monitors in the rack.

PEAK HOLD - The PEAK HOLD function allows recall of the maximum RPM value obtained since the last PEAK HOLD reset. The PEAK HOLD value is read by pressing both Alert buttons simultaneously. The Tachometer retains the PEAK HOLD value even after loss of monitor power. PEAK HOLD is cleared by shorting two adjacent testpoints located behind the front panel.

BUFFERED OUTPUTS - The BUFFERED TRANSDUCER A and B coaxial cable connectors on the front panel of the monitor provide buffered signals both redundant transducers. These connectors can be used to connect external equipment to the monitor.

RECORDER OUTPUT - Depending on the option selected, the recorder output levels proportional to RPM (and RPM/MIN with the Rotor Accel. Tach.) are either 0 to -10Vdc, +1 to +5Vdc, or +4 to +20mA.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

6 MONITOR FUNCTIONS (CONT)

SELF TEST - The monitor has three categories of self test: power-up, cyclic, and user-invoked.

A power-up self test, consisting of a series of basic monitor OK tests, is performed automatically each time the monitor is turned on.

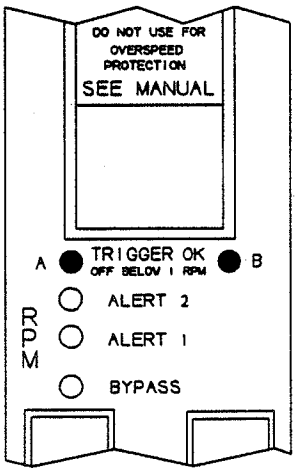
A cyclic self test is performed automatically while the monitor is operating. Errors encountered during cyclic tests disable the monitor and flash an error code on the front panel display. If the error is intermittent, the monitor will begin operating again, and the error codes will be stored for retrieval during user-invoked self tests. Stored error codes are indicated by the TRIGGER OK LEDs flashing at 5 Hz (5 times per second) provided that the monitor (or trigger) is OK.

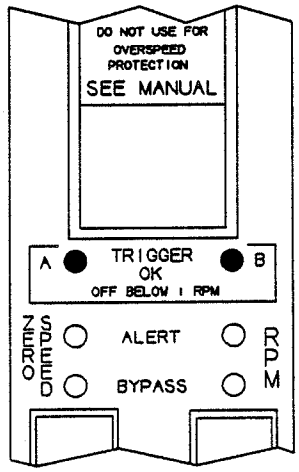
A user-invoked test performs a power-up self test and allows error messages stored during cyclic tests to be read and cleared. Stored errors are annunciated by flashing the TRIGGER OK LEDs at 5 Hz and displaying the error codes on the front panel LCD display.

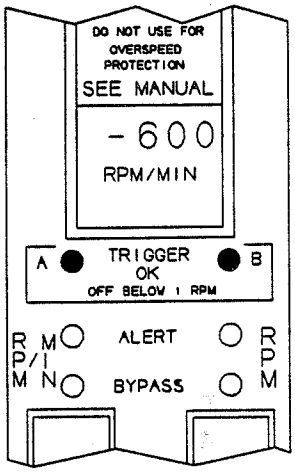
MONITOR OK - A MONITOR NOT OK condition resulting from failing self test will drive the system OK relay into its NOT OK state and extinguish the front panel TRIGGER OK LEDs.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

7 OK







NOTE: EACH MONITOR IN THE SYSTEM CONTROLS THE OK RELAY. THE TACHOMETER CAN CAUSE A NOT OK RELAY CONDITION (DE-ENERGIZED RELAY) ONLY WITH A MONITOR NOT OK. A TRIGGER NOT OK WILL NOT AFFECT THE SYSTEM OK RELAY.

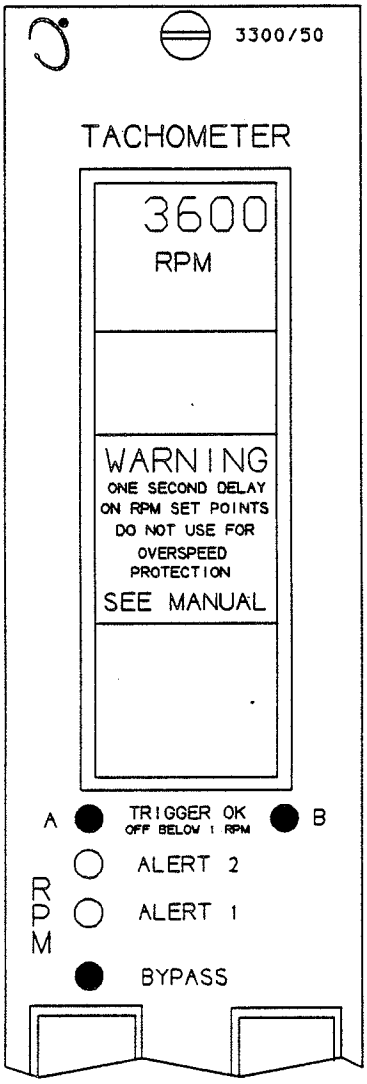
LED DISPLAY A	LED DISPLAY B	CONDITION	OK RELAY DRIVE **
● TRIGGER OK *	●	MONITOR OK AND TRIGGER A AND B OK *	ON
● TRIGGER OK	○	RESPECTIVE TRIGGER A OR B NOT OK, AND MONITOR OK	ON
○ TRIGGER OK	●		
○ TRIGGER OK	○	BOTH TRIGGER A AND B NOT OK, AND/OR MONITOR NOT OK	OFF **
◉ TRIGGER OK	◉	FLASHING AT 5 Hz = ERROR ENCOUNTERED DURING CYCLIC TEST. READ ERROR MESSAGE SEE SECTION ON ERROR CODES	ON

* "TRIGGER OK" MEANS THE RPM VALUE IS BETWEEN 1 AND 100,000 RPM AND THAT THE RPM VALUE HAS NOT CHANGED MORE THAN 50% BETWEEN TWO INPUT TRIGGERS.

** A NOT OK MONITOR CAN BE BYPASSED TO RESTORE RELAY OK CONDITIONS. IF THE MONITOR IS OK, BUT THE TRIGGERS ARE NOT, THE OK RELAY WILL BE ON (OK).

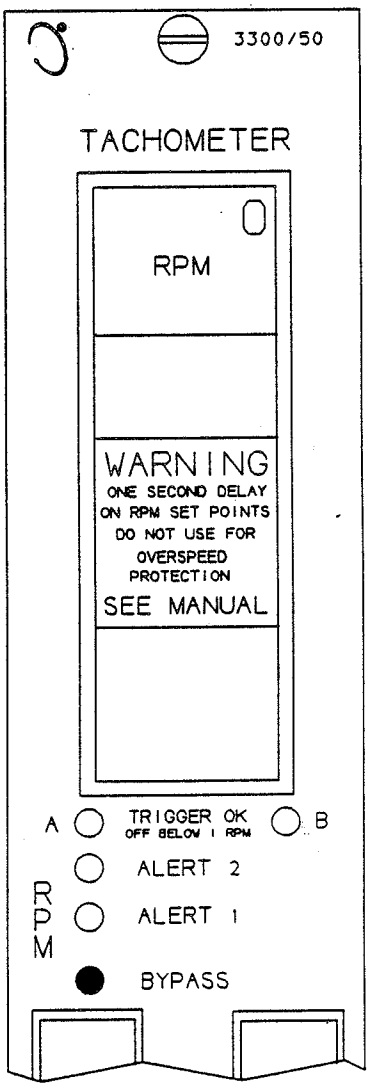
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

8 BYPASS (DUAL SETPOINT TACHOMETER)



ALERT 2 RELAY BYPASSED

MONITOR ON LINE
ALERT 1 RELAY FUNCTIONAL



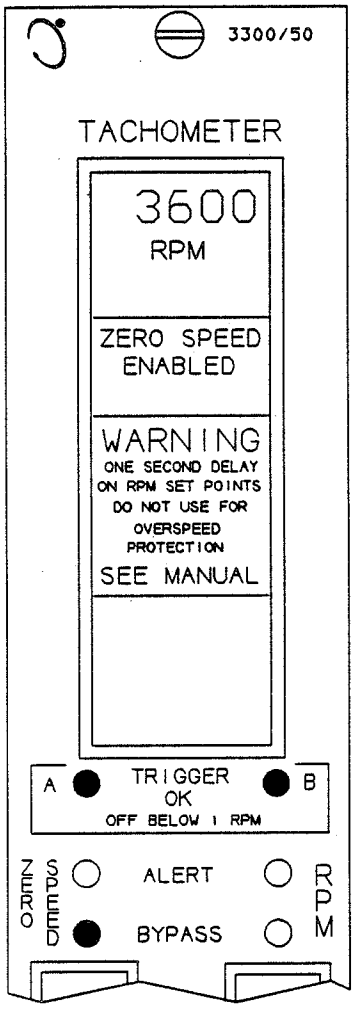
MONITOR BYPASSED

MONITOR OFF LINE
DISPLAY AT ZERO

NOTE: THE ALERT 1 RELAY CANNOT BE BYPASSED IN THE DUAL SETPOINT TACHOMETER.

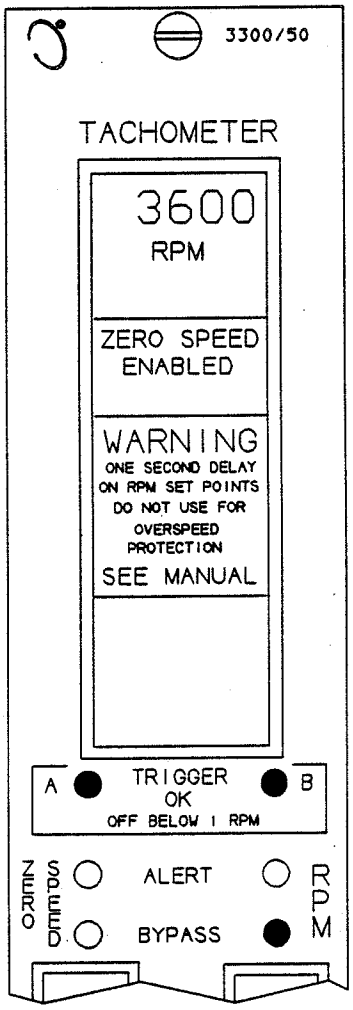
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

9 BYPASS (ZERO SPEED TACHOMETER)



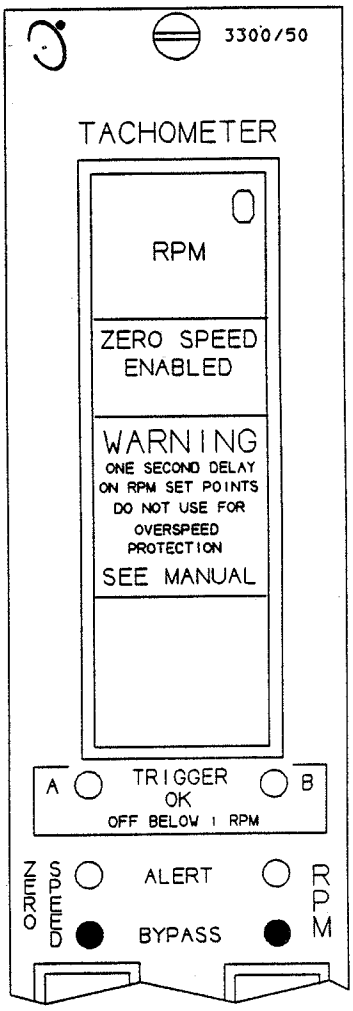
ZERO SPEED ALERT RELAY BYPASSED

MONITOR ON LINE
RPM ALERT RELAY FUNCTIONAL



RPM ALERT RELAY BYPASSED

MONITOR ON LINE
ZERO SPEED ALERT RELAY FUNCTIONAL

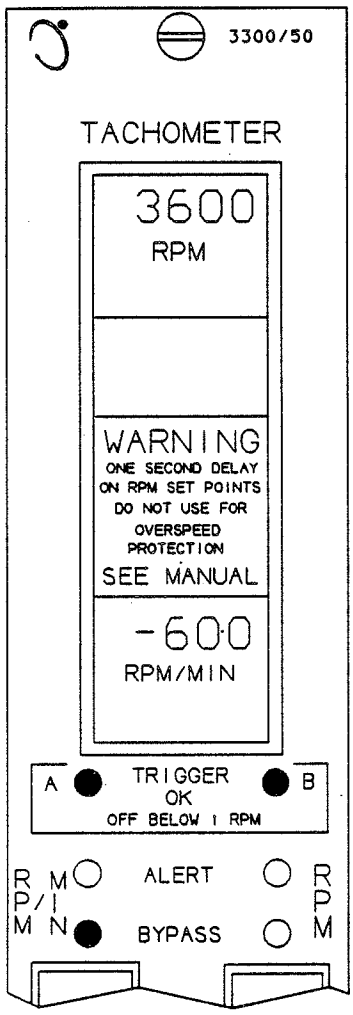


MONITOR BYPASSED

MONITOR OFF LINE
RPM DISPLAY AT ZERO

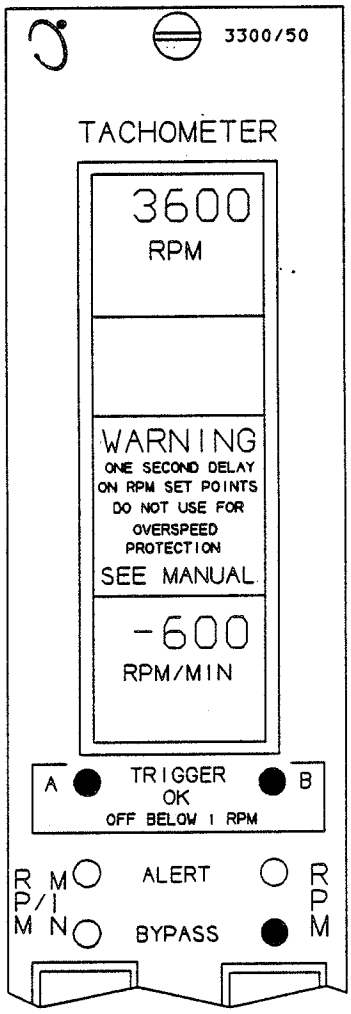
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

10 BYPASS (ROTOR ACCEL. TACHOMETER)



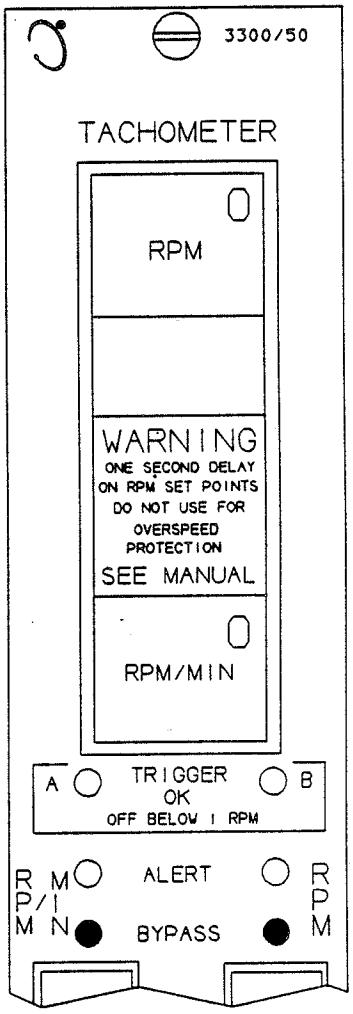
ROTOR ACCEL ALERT RELAY BYPASSED

MONITOR ON LINE
RPM ALERT RELAY FUNCTIONAL



RPM ALERT RELAY BYPASSED

MONITOR ON LINE
ROTOR ACCEL. ALERT RELAY FUNCTIONAL

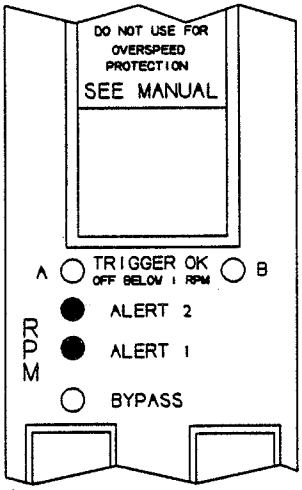


MONITOR BYPASSED

MONITOR OFF LINE
DISPLAYS AT ZERO

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

11 ALERT (DUAL SETPOINT TACHOMETER)



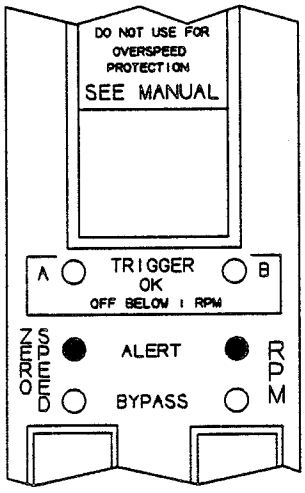
LED DISPLAY	CONDITION	RELAY DRIVE ALERT 1	RELAY DRIVE ALERT 2
● ALERT 1 ○ ALERT 2	THE ALERT 1 SETPOINT HAS BEEN EXCEEDED. *	ON	OFF
○ ALERT 1 ● ALERT 2	THE ALERT 2 SETPOINT HAS BEEN EXCEEDED. *	OFF	ON
● ALERT 1 ● ALERT 2	BOTH ALERT SETPOINTS HAVE BEEN EXCEEDED. *	ON	ON
◉ ALERT 1 ○ ALERT 2	THE ALERT 1 SETPOINT HAS BEEN EXCEEDED. ALERT 1 IS THE FIRST OUT ALERT. **	ON	OFF
○ ALERT 1 ◉ ALERT 2	THE ALERT 2 SETPOINT HAS BEEN EXCEEDED. ALERT 2 IS THE FIRST OUT ALERT. **	OFF	ON

* AN RPM ALERT REQUIRES AT LEAST ONE TRANSDUCER TO OBSERVE THE ROTOR SPEED (RPM) RISE ABOVE AN OVER SPEED SETPOINT OR FALL BELOW AN UNDER SPEED SETPOINT FOR AT LEAST ONE SECOND.

** FIRST OUT RESOLUTION IS BETTER THAN 50 MILLISECONDS. IF TWO ALERTS OCCUR WITHIN 50 MILLISECONDS OR LESS, BOTH LEDS COULD FLASH. BOTH ALERTS MAY FLASH TO INDICATE FIRST OUT FOLLOWING SELF TEST.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

12 ALERT (ZERO SPEED TACHOMETER)



LED DISPLAY ALERT		CONDITION	RELAY DRIVE ALERT	
ZERO SPEED	RPM		ZERO SPEED	RPM
●	○	THE ZERO SPEED ALERT CONDITIONS HAVE BEEN MET. *	ON	OFF
○	●	THE RPM ALERT CONDITIONS HAVE BEEN MET. **	OFF	ON
●	●	BOTH THE ZERO SPEED AND RPM ALERT CONDITIONS HAVE BEEN MET. * **	ON	ON
◉	○	THE ZERO SPEED ALERT CONDITIONS HAVE BEEN MET. ZERO SPEED IS THE FIRST OUT ALERT. ***	ON	OFF
○	◉	THE RPM ALERT CONDITIONS HAVE BEEN MET. THE RPM ALERT IS THE FIRST OUT ALERT. ***	OFF	ON

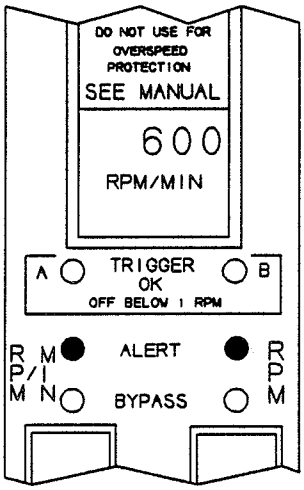
* THE ZERO SPEED ALERT CONDITIONS ARE AS FOLLOWS:
1. THE TRIGGER OK CONDITIONS (SECTION 7) MUST BE MET FOR BOTH TRANSDUCERS BELOW 500 RPM.
2. BOTH TRANSDUCERS MUST OBSERVE THE ROTOR SPEED (RPM) FALL BELOW THE ZERO SPEED ALERT SETPOINT FOR AT LEAST ONE SECOND.

** AN RPM ALERT REQUIRES AT LEAST ONE TRANSDUCER TO OBSERVE THE ROTOR SPEED (RPM) RISE ABOVE AN OVER SPEED SETPOINT OR FALL BELOW AN UNDER SPEED SETPOINT FOR AT LEAST ONE SECOND.

*** FIRST OUT RESOLUTION IS BETTER THAN 50 MILLISECONDS. IF TWO ALERTS OCCUR WITHIN 50 MILLISECONDS OR LESS, BOTH LEDS COULD FLASH. BOTH ALERTS MAY FLASH TO INDICATE FIRST OUT FOLLOWING SELF TEST.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

13 ALERT (ROTOR ACCEL. TACHOMETER)



LED DISPLAY ALERT		CONDITION	RELAY DRIVE ALERT	
RPM/MIN	RPM		RPM/MIN	RPM
●	○	THE RPM/MINUTE ALERT CONDITIONS HAVE BEEN MET. *	ON	OFF
○	●	THE RPM ALERT CONDITIONS HAVE BEEN MET. **	OFF	ON
●	●	BOTH THE RPM/MINUTE AND RPM ALERT CONDITIONS HAVE BEEN MET. * **	ON	ON
◉	○	THE RPM/MINUTE ALERT CONDITIONS HAVE BEEN MET. RPM/MINUTE IS THE FIRST OUT ALERT. ***	ON	OFF
○	◉	THE RPM ALERT CONDITIONS HAVE BEEN MET. THE RPM ALERT IS THE FIRST OUT ALERT. ***	OFF	ON

* AN RPM/MIN ALERT REQUIRES AT LEAST ONE TRANSDUCER TO OBSERVE THE ROTOR ACCELERATION (RPM/MIN) VALUE EXCEED THE RPM/MIN SETPOINT FOR AT LEAST ONE SECOND.

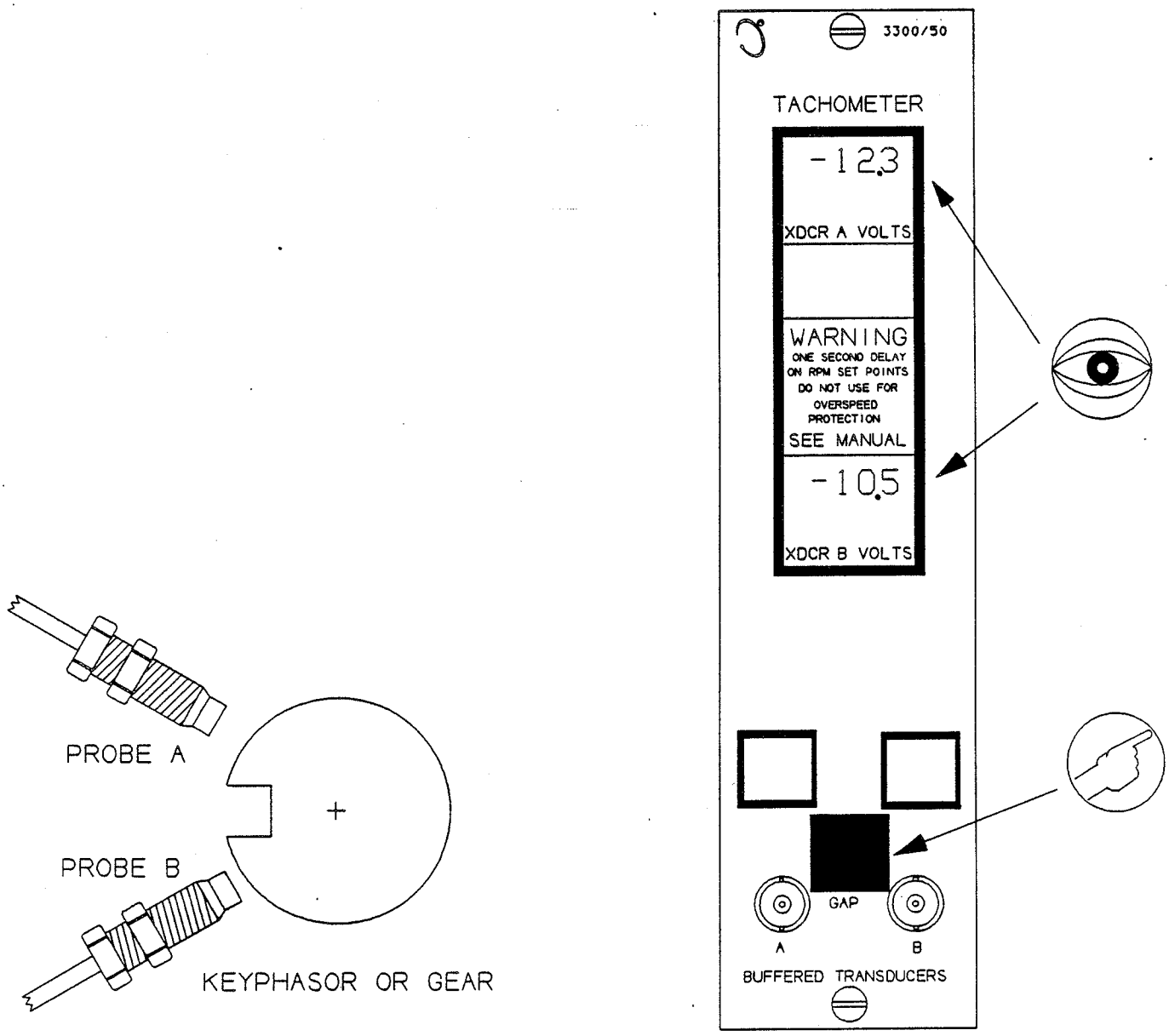
** AN RPM ALERT REQUIRES AT LEAST ONE TRANSDUCER TO OBSERVE THE ROTOR SPEED (RPM) RISE ABOVE AN OVER SPEED SETPOINT OR FALL BELOW AN UNDER SPEED SETPOINT FOR AT LEAST ONE SECOND.

*** FIRST OUT RESOLUTION IS BETTER THAN 50 MILLISECONDS. IF TWO ALERTS OCCUR WITHIN 50 MILLISECONDS OR LESS, BOTH LEDS COULD FLASH. BOTH ALERTS MAY FLASH TO INDICATE FIRST OUT FOLLOWING SELF TEST.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

14 READ GAP VOLTAGE

PRESS GAP SWITCH AND READ GAP VOLTAGE FOR BOTH TRANSDUCER A AND TRANSDUCER B.



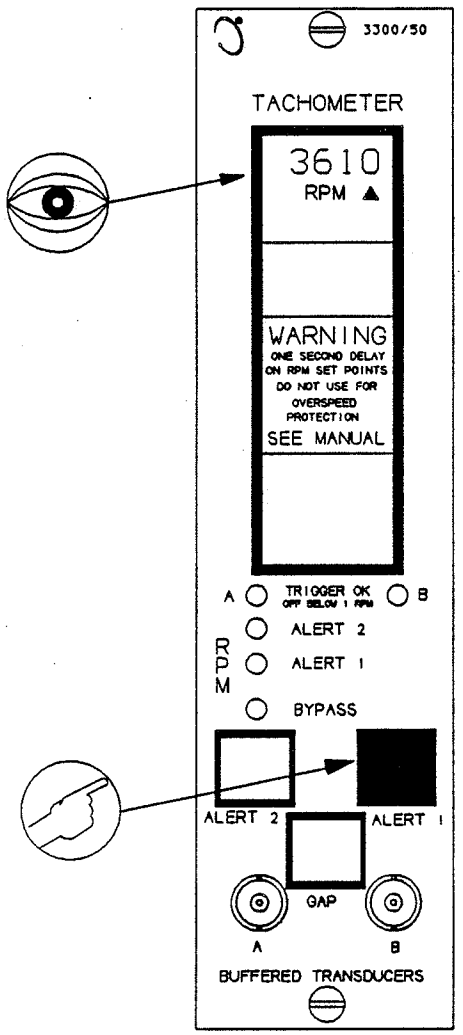
NOTE: THE GAP VOLTAGE IS INTENDED TO BE USED FOR THE INSTALLATION OF PROBES. WHILE A MACHINE IS RUNNING, THE DISPLAYED GAP VOLTAGE MAY VARY SIGNIFICANTLY.

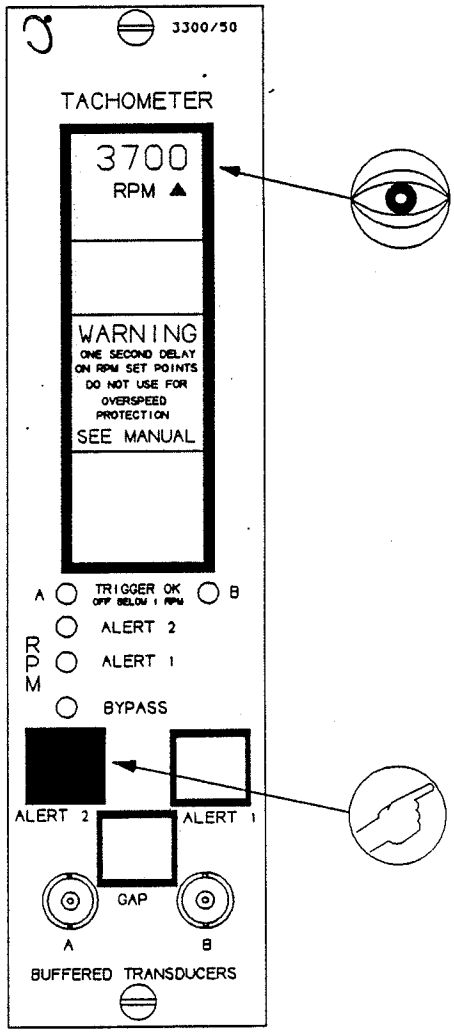
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

15 READ SETPOINTS (DUAL SETPOINT TACH.)

PRESS THE ALERT 1 SWITCH AND READ THE ALERT 1 SETPOINT ON THE FRONT PANEL DISPLAY. UP ARROW INDICATES OVER SPEED SETPOINT. DOWN ARROW INDICATES UNDER SPEED SETPOINT.

PRESS THE ALERT 2 SWITCH AND READ THE ALERT 2 SETPOINT ON THE FRONT PANEL DISPLAY. UP ARROW INDICATES OVER SPEED SETPOINT. DOWN ARROW INDICATES UNDER SPEED SETPOINT.



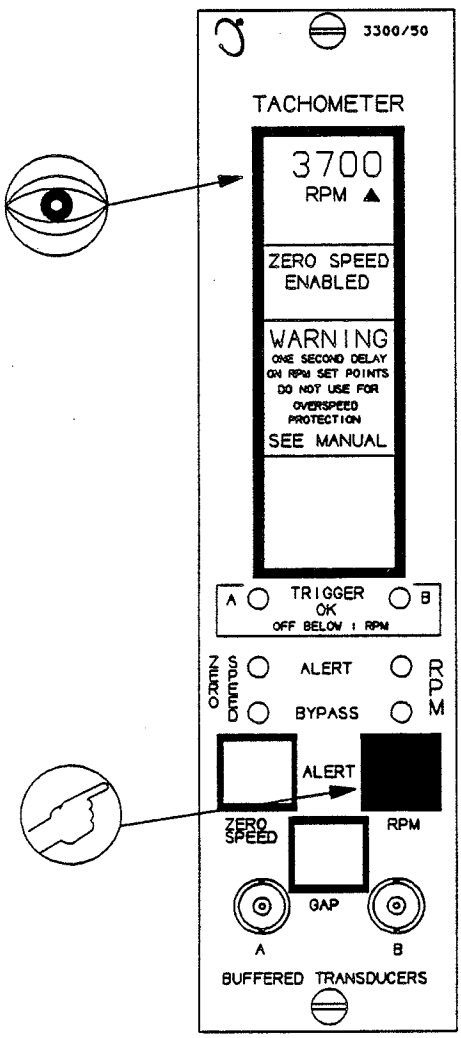


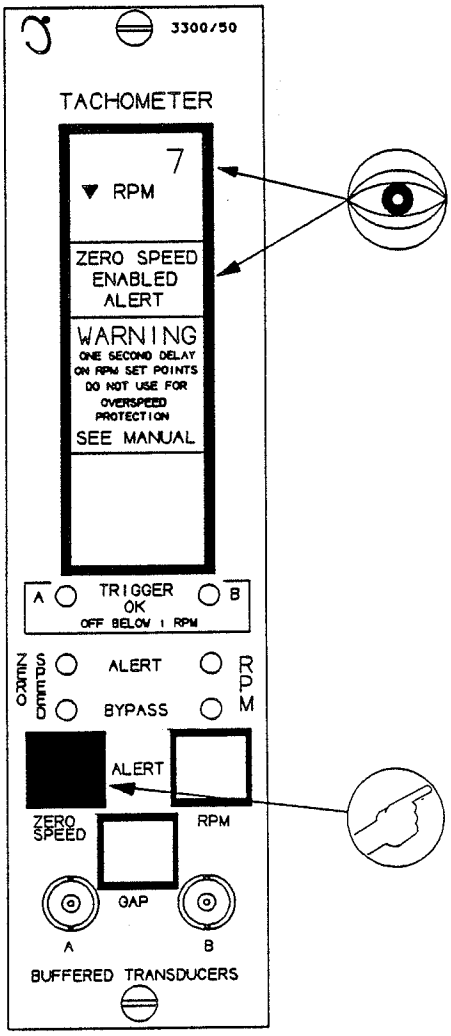
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

16 READ SETPOINTS (ZERO SPEED TACH.)

PRESS THE RPM ALERT SWITCH AND READ THE RPM ALERT SETPOINT ON THE FRONT PANEL DISPLAY. UP ARROW INDICATES OVER SPEED SETPOINT. DOWN ARROW INDICATES UNDER SPEED SETPOINT.

PRESS THE ZERO SPEED ALERT SWITCH AND READ THE ZERO SPEED ALERT SETPOINT ON THE FRONT PANEL DISPLAY. DOWN ARROW INDICATES UNDER SETPOINT. (ZERO SPEED IS ALWAYS AN UNDER SETPOINT.)



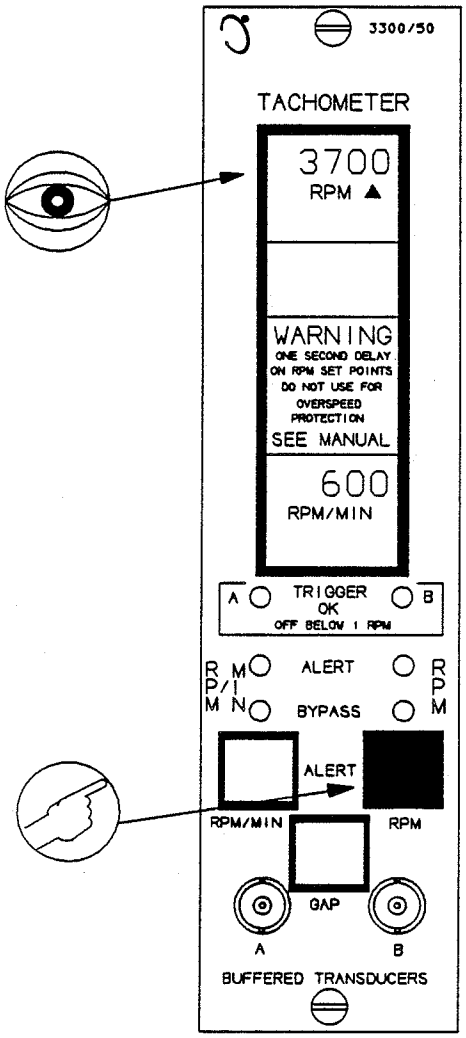


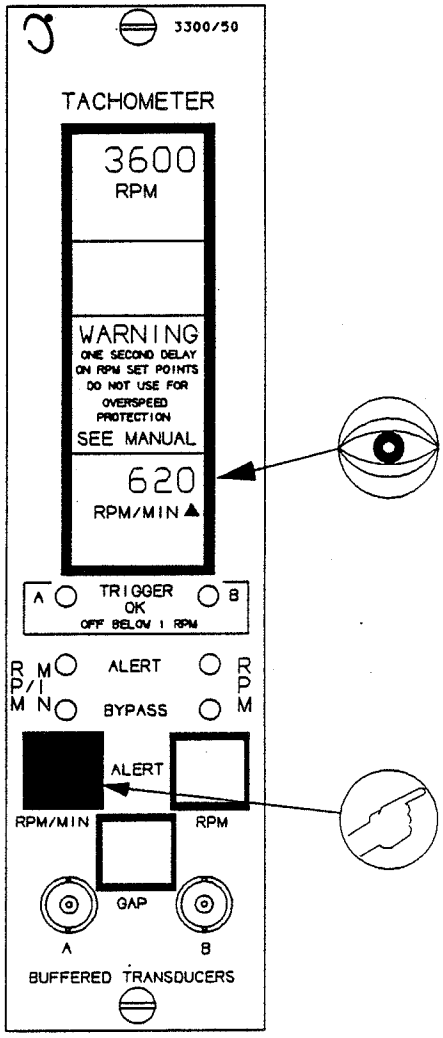
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

17 READ SETPOINTS (ROTOR ACCEL. TACH.)

PRESS THE RPM ALERT SWITCH AND READ THE RPM ALERT SETPOINT ON THE FRONT PANEL DISPLAY. UP ARROW INDICATES OVER SPEED SETPOINT. DOWN ARROW INDICATES UNDER SPEED SETPOINT.

PRESS THE RPM/MIN ALERT SWITCH AND READ THE RPM/MIN ALERT SETPOINT ON THE FRONT PANEL DISPLAY. UP ARROW INDICATES OVER SETPOINT. (ROTOR ACCEL IS ALWAYS AN OVER SETPOINT.)

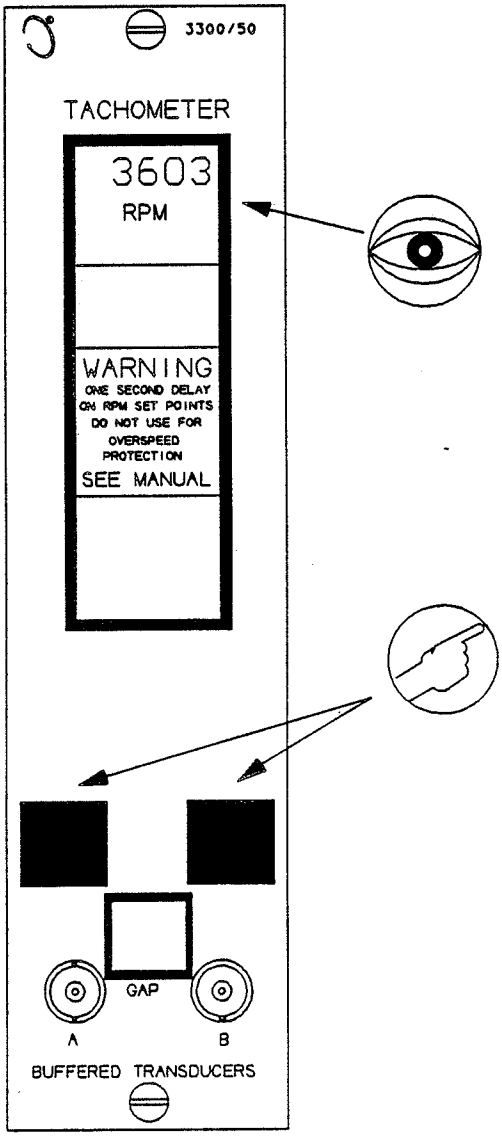




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

18 READ PEAK HOLD

PRESS BOTH ALERT SWITCHES SIMULTANEOUSLY AND READ THE PEAK HOLD VALUE.

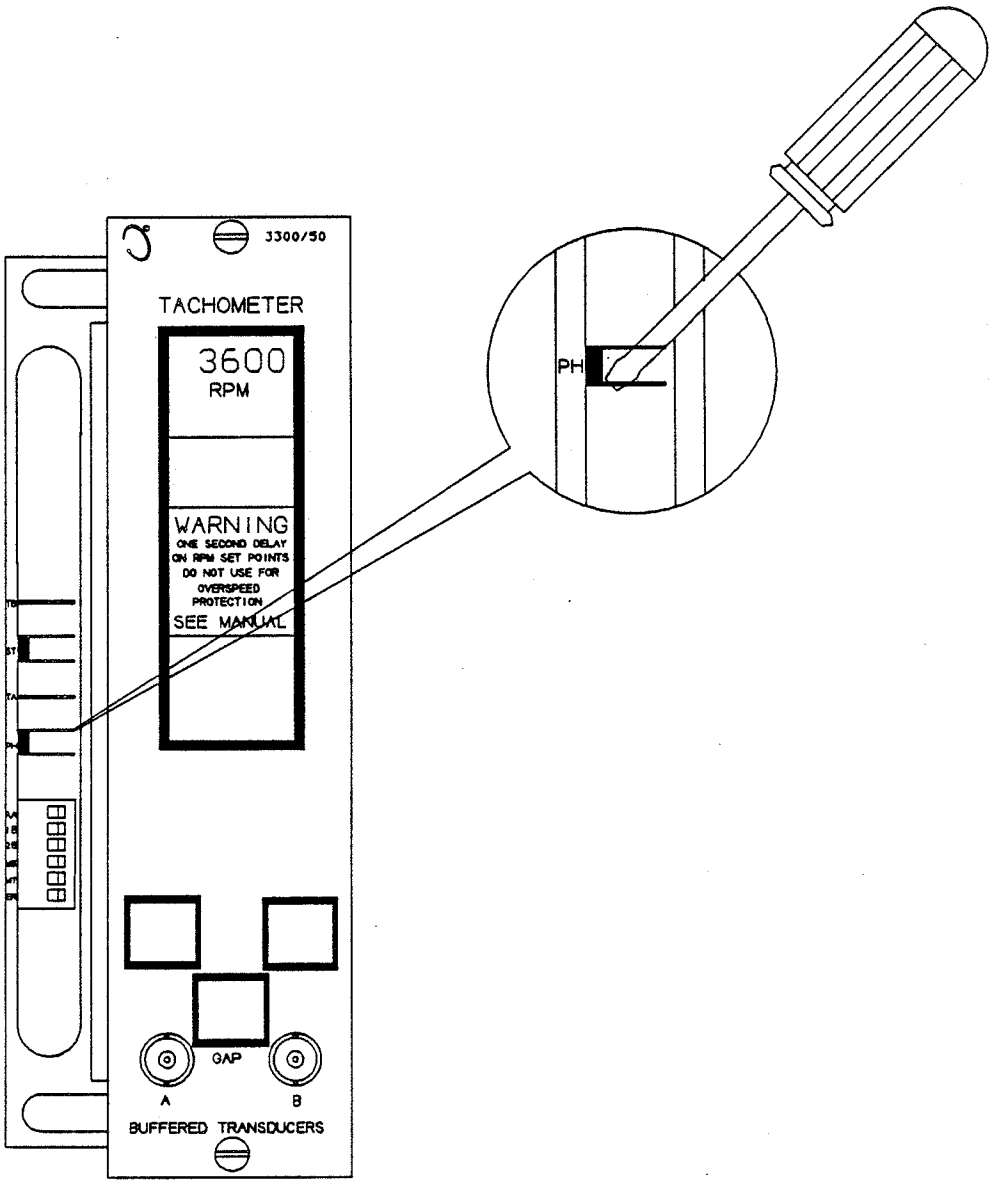


PEAK HOLD IS THE MAXIMUM RPM VALUE OBTAINED SINCE THE LAST PEAK HOLD RESET.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

19 RESET PEAK HOLD

RESET THE VALUE STORED IN **PEAK HOLD** MEMORY BY SHORTING ACROSS **PEAK HOLD** (PH) PINS.

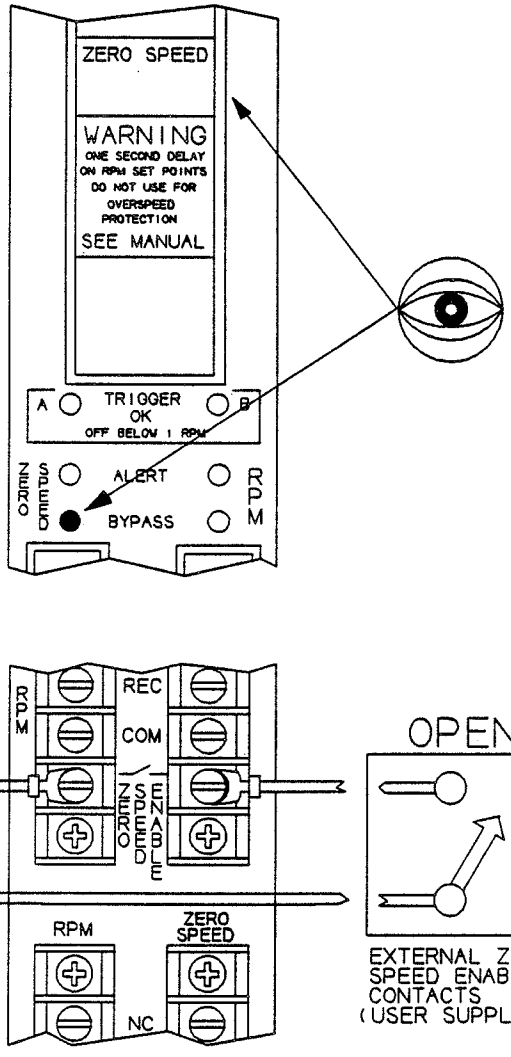


READ PEAK HOLD TO VERIFY THAT IT HAS BEEN CLEARED (SEE PREVIOUS PAGE).

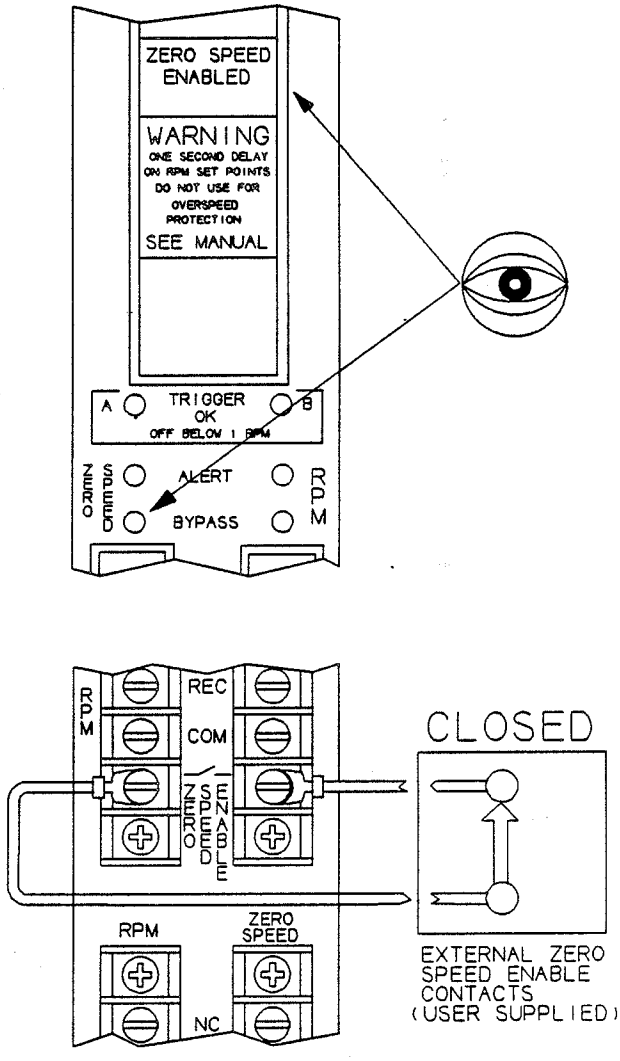
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

20 ENABLE (ZERO SPEED TACHOMETER)

WHEN THE EXTERNAL ZERO SPEED ENABLE CONTACTS ARE OPEN, THE **ENABLE** INDICATOR WILL EXTINGUISH AND THE ZERO SPEED **BYPASS** LED WILL LIGHT. WHILE THESE CONTACTS ARE OPEN, A ZERO SPEED ALERT CANNOT OCCUR.



WHEN THE EXTERNAL ZERO SPEED ENABLE CONTACTS ARE CLOSED, THE **ENABLE** INDICATOR WILL SHOW AND THE **BYPASS** LED WILL EXTINGUISH (IF THE ZERO SPEED FUNCTION HAS NOT BEEN MANUALLY BYPASSED).

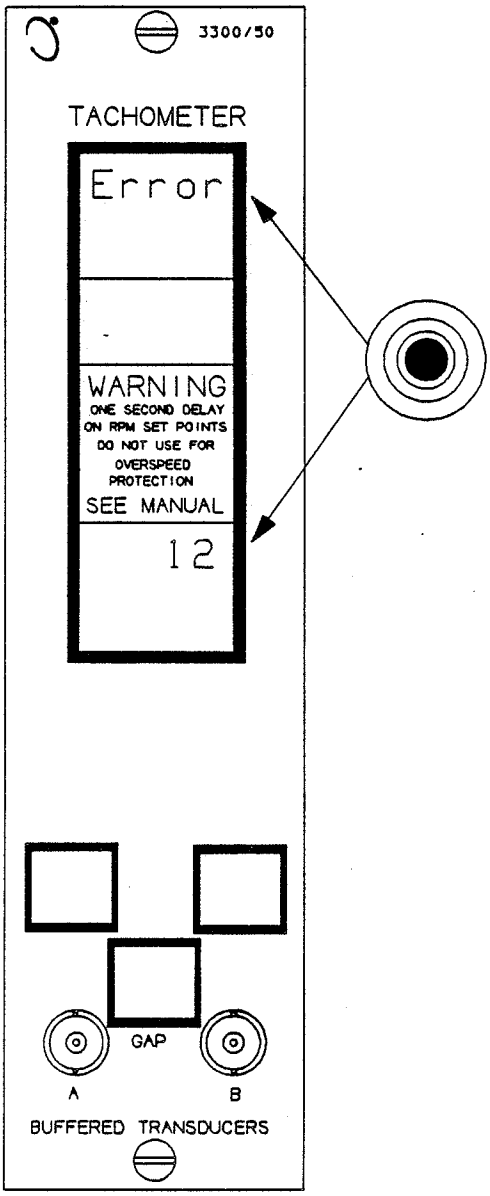


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

21 SELF TEST

THE MONITOR HAS THREE LEVELS OF SELF TESTS:

POWER-UP TEST: PERFORMED ONLY WHEN THE MONITOR IS TURNED ON.
CYCLIC TEST: PERFORMED CONTINUOUSLY.
USER-INVOKED TEST: PERFORMED ONLY WHEN INITIATED BY USER.



IF ERRORS ARE DETECTED DURING CYCLIC SELF TESTS:

MONITORING IS ABORTED UNTIL THE ERROR IS RESOLVED.

ERROR CODE IS STORED IN MEMORY AND FLASHED ON THE LCD DISPLAY.

BYPASS LED GOES ON AND **OK** LED FLASHES AT 5 HZ.

IF ERROR IS INTERMITTENT AND GOES AWAY, MONITORING IS RESUMED AND **OK** LED FLASHES AT 5 HZ.

ERROR CODE IS STORED. USER INVOKED-TEST DISPLAYS AND CLEARS ERROR.

IF ERRORS ARE DETECTED DURING POWER-UP TEST OR USER-INVOKED SELF TEST:

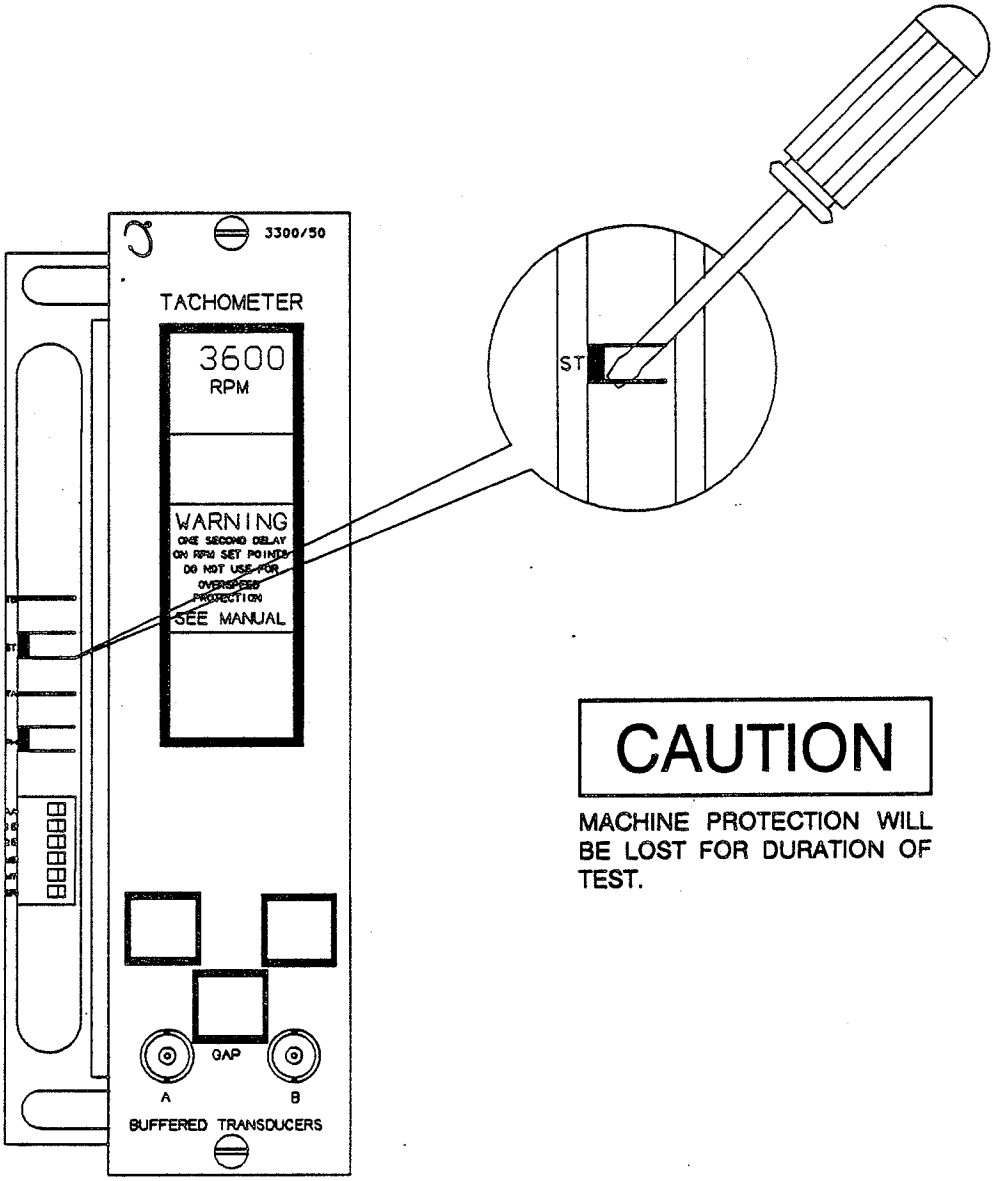
MONITORING IS ABORTED UNTIL USER ACTION RESOLVES PROBLEM.

TEST CAN BE RERUN WITH MONITOR POWER-UP OR USER-INVOKED TEST.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

21 SELF TEST (CONT)

INITIATE USER-INVOKED TEST BY SHORTING ACROSS TWO SELF TEST (ST) PINS.



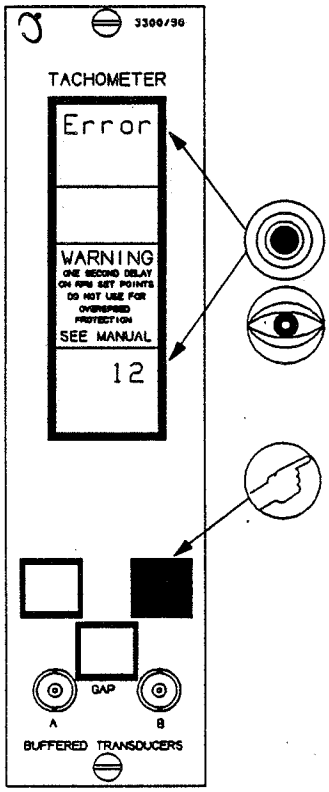
CAUTION

MACHINE PROTECTION WILL BE LOST FOR DURATION OF TEST.

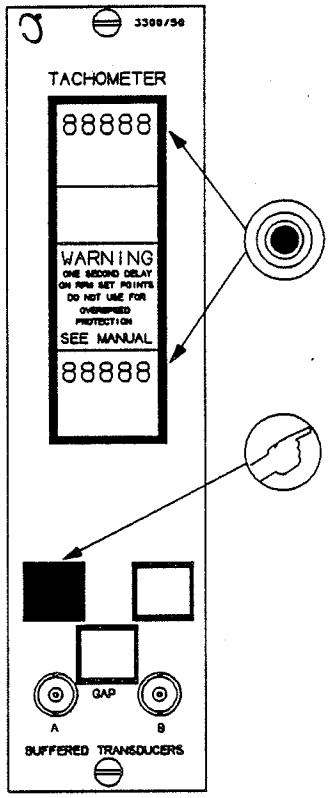
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

21 SELF TEST (CONT)

AT THE COMPLETION OF USER-INVOKED SELF TEST, THE MONITOR WILL RECALL STORED ERROR CODES, IF ANY. THESE ERROR CODES MUST BE READ AND CLEARED WITH USER INTERACTION TO ALLOW MONITORING TO CONTINUE.



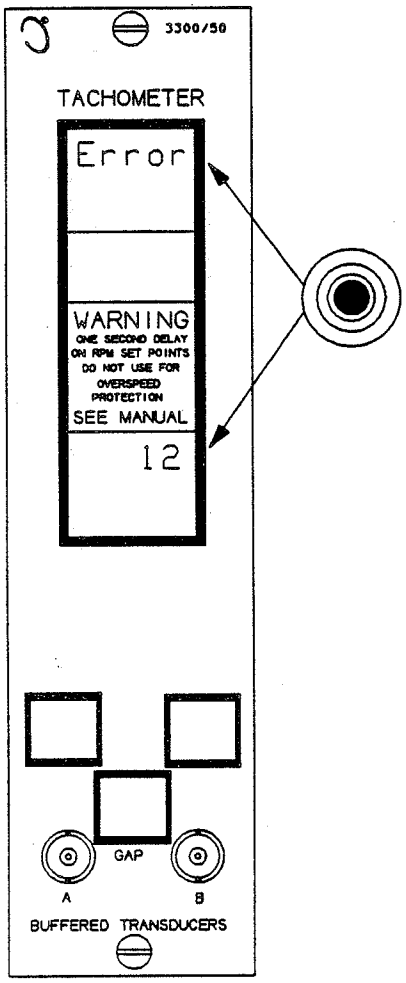
READ CODES ON LIST; STEP THROUGH EACH ERROR CODE ON LIST BY PRESSING AND HOLDING THE RIGHT ALERT SWITCH FOR APPROXIMATELY ONE SECOND.



AT THE END OF THE LIST, THE LCD WILL DISPLAY ALL EIGHTS. TO REREAD THE LIST, PRESS THE RIGHT ALERT SWITCH. TO CLEAR THE LIST FROM MEMORY, PRESS AND HOLD THE LEFT ALERT SWITCH FOR APPROXIMATELY ONE SECOND.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

21 SELF TEST (CONT)



ERROR CODE	DESCRIPTION
2	ROM CHECKSUM HAS FAILED. *
3	EEPROM FAILURE NO. 1. **
4	EEPROM FAILURE NO. 2. *** ADJUST SETPOINTS
5	+7.5V/-VT NODE OUT OF TOLERANCE. **
6	+VRH NODE OUT OF TOLERANCE. **
7	+5V NODE OUT OF TOLERANCE. **
8	MVREF NODE OUT OF TOLERANCE. **
9	+7.5V NODE OUT OF TOLERANCE. **
10	+VRL NODE OUT OF TOLERANCE. **
12	+5V/-7.5V NODE OUT OF TOLERANCE. **
14	RAM FAILURE. *
17	COP WATCHDOG NOT CONFIGURED. *
21	INCORRECT SWITCH OR SWITCH COMBINATION. ****
32	AUTO THRESHOLD OR MAGNETIC PICKUP NOT ALLOWED WITH A ZERO SPEED TACHOMETER.
33	THE PROCESSOR HAS NOT BEEN PROGRAMMED FOR THE TACHOMETER TYPE. *
34	THE INPUT FREQUENCY TO THE TACHOMETER IS TOO HIGH FOR PROPER OPERATION.

* TESTED ONLY AT POWER-UP OR USER-INVOKED SELF TEST. THIS ERROR IS DISPLAYED ON THE FRONT PANEL BUT IS NOT STORED IN MEMORY.

** TESTED ONLY AT CYCLIC SELF TEST. ERRORS 2, 3 AND 14 ARE NONRECOVERABLE AND ERRORS 5 THROUGH 12 COULD BE INTERMITTENT AND RECOVERABLE.

*** ERROR 4 IS A SETPOINT FAILURE AND MAY BE CORRECTED BY ADJUSTING ALL SETPOINTS IN THE MONITOR.

**** TESTED ONLY WHEN MONITOR IS IN SETUP MODE.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

22 INDEX

	PAGE
ALERT	7
ALERT BYPASS	7
ALERT RELAYS	7
BUFFERED OUTPUTS	7
CYCLIC TEST	23
ERROR CODE	26
FIRST OUT	13, 14, 15
FIRST OUT ALERT	7
GAP	16
MONITOR BYPASS	7
MONITOR OK	8
OK RELAY	6
PART NUMBER	4
PEAK HOLD	7, 20
PEAK HOLD RESET	21
POWER-UP TEST	23
PROBE GAP VOLTAGE	6
RECORDER OUTPUT	7
ROTOR ACCEL ALERT	15
ROTOR ACCELERATION	6
ROTOR SPEED MONITORING	6
RPM ALERT	13, 14, 15
SELF TEST	8, 23
SETPOINT	17, 18, 19
TRIGGER OK	6
USER-INVOKED TEST	23
ZERO SPEED	6
ZERO SPEED ALERT	14

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP