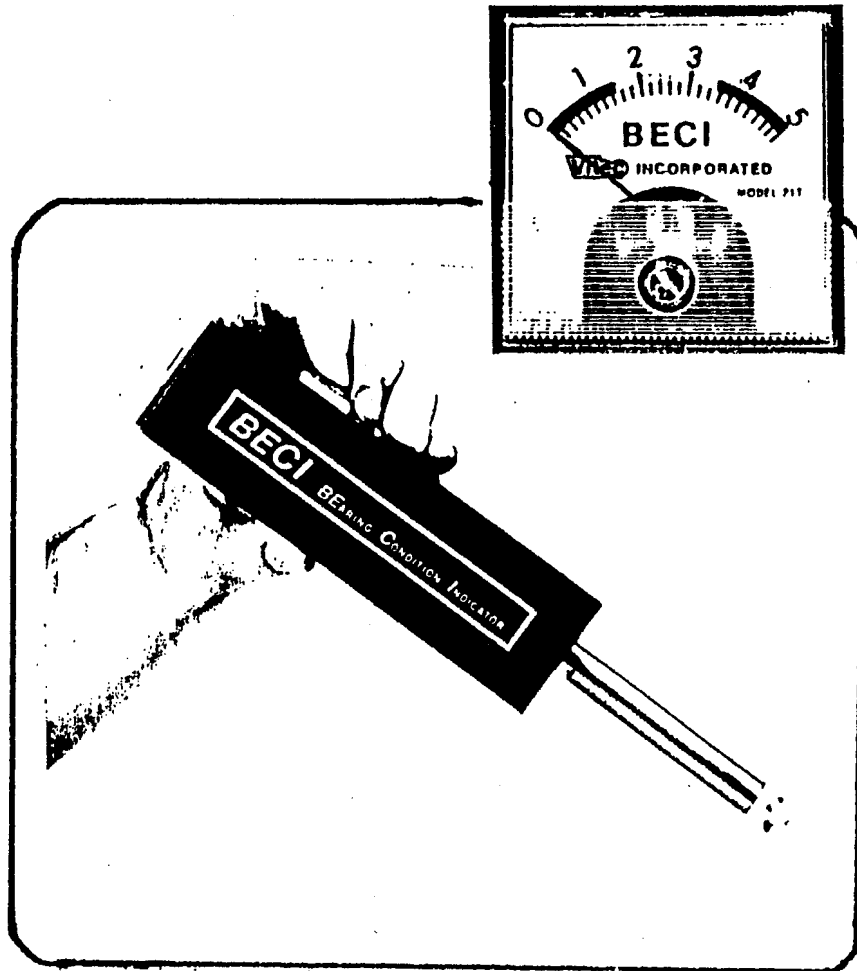
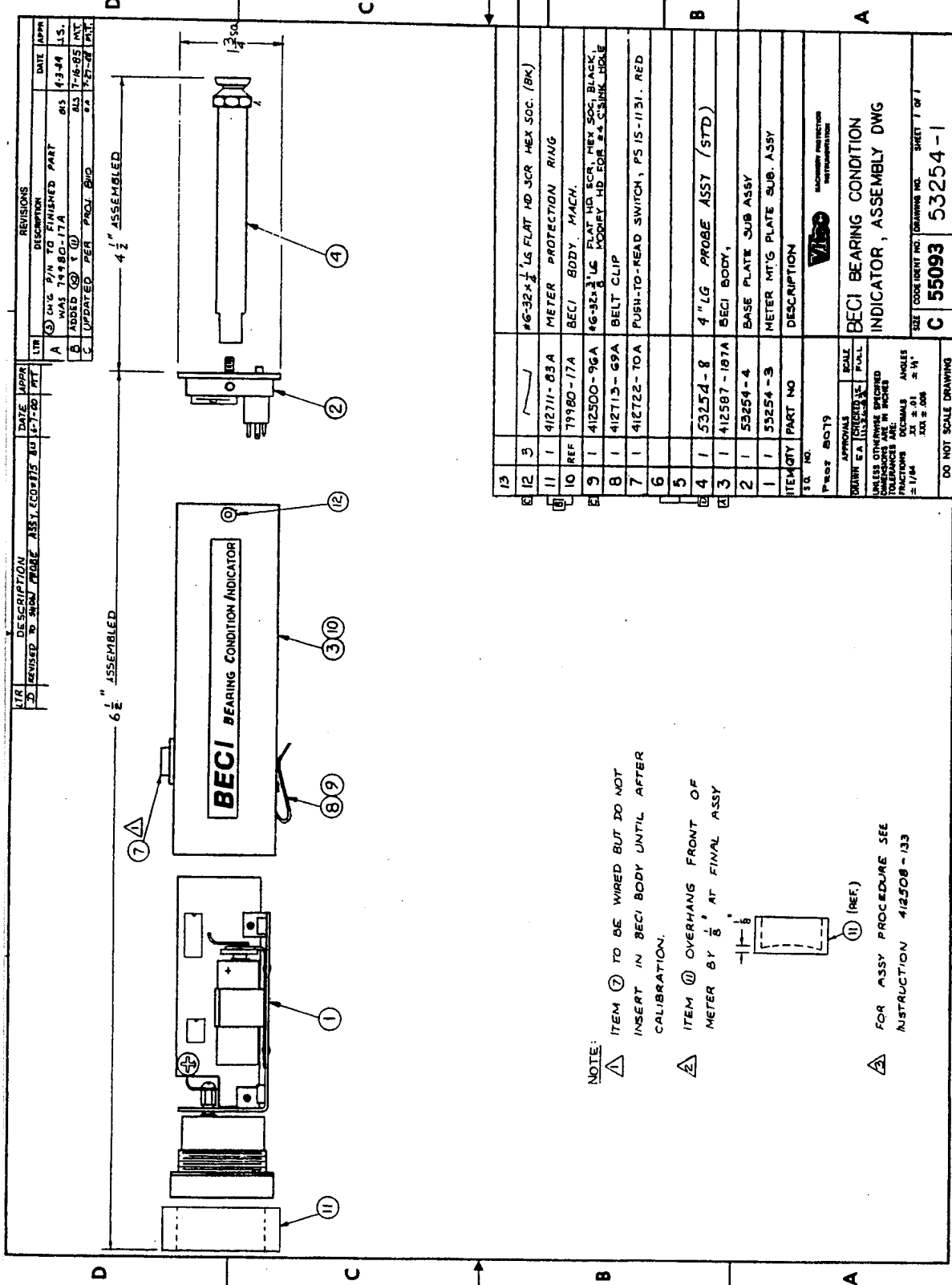


# BECI

## BEARING CONDITION INDICATOR

### OPERATING INSTRUCTIONS





DESCRIPTION		DATE	
LTR	APPR	LTR	APPR
3	CHG P/N TO FINISHED PART WAS 79980-17A	85	4-3-84 U.S.
4	ADDED (10)	85	7-16-85 MT
5	UPDATED PER PAOL BUD	87	7-27-87 MT

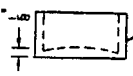
REVISIONS		DATE	
LTR	APPR	LTR	APPR
A	CHG P/N TO FINISHED PART WAS 79980-17A	85	4-3-84 U.S.
B	ADDED (10)	85	7-16-85 MT
C	UPDATED PER PAOL BUD	87	7-27-87 MT

DESCRIPTION		DATE	
LTR	APPR	LTR	APPR
3	CHG P/N TO FINISHED PART WAS 79980-17A	85	4-3-84 U.S.
4	ADDED (10)	85	7-16-85 MT
5	UPDATED PER PAOL BUD	87	7-27-87 MT

NOTE:

⚠ ITEM 7 TO BE WIRED BUT DO NOT INSERT IN BECI BODY UNTIL AFTER CALIBRATION.

⚠ ITEM 10 OVERHANG FRONT OF METER BY 1/8" AT FINAL ASSY



⚠ FOR ASSY PROCEDURE SEE INSTRUCTION 412508-133

ITEM	DESCRIPTION	QTY	UNIT	REF
13				
12	#6-32x1/4 LG FLAT HD SCR HEX SOC. (BK)			
11	METER PROTECTION RING			
10	REF 79980-17A BECI BODY MACH.			
9	#6-32x3/8 LG FLAT HD SCR, HEX SOC, BLACK			
8	#6-32x3/8 LG FLAT HD SCR, HEX SOC, BLACK			
7	BELT CLIP			
6	PUSH-TO-READ SWITCH, PS IS-1131, RED			
5				
4	4" LG PROBE ASSY (STD)			
3	BECI BODY,			
2	BASE PLATE SUB ASSY			
1	METER MT'G PLATE SUB. ASSY			

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5				
4	4" LG PROBE ASSY (STD)			
3	BECI BODY,			
2	BASE PLATE SUB ASSY			
1	METER MT'G PLATE SUB. ASSY			

Operating InstructionsGeneral

BECI ("Becky") is a lightweight, easy-to-use meter which provides a relative reading of the condition of anti-friction (ball, roller) bearings and gears in machinery.

The principle of operation of BECI is very straightforward. It is a commonly accepted fact that faulty bearings\* and gears generate a high frequency vibration signal that can be from 10 to 50 times (or more) the rotating speed of the machine. BECI allows the user to measure this high frequency component of vibration, while ignoring the lower frequencies of vibration normally associated with common problems such as unbalance, misalignment, etc.

Procedure

BECI is extremely easy to operate if the following steps are followed.

1. Remove BECI from its protective carrying case. Reasonable care must be used in handling BECI. Dropping the unit onto a hard surface can damage the meter and/or electronics in the unit.
2. Hold the tip of BECI firmly against the housing or bearing cap of the bearing to be tested. The swivel tip on BECI's probe allows for some misalignment, but the probe should be held as perpendicular to the surface being measured as possible.

Note: \*All referral to "Bearings" include only anti-friction type bearings (ball, roller, tapered roller, etc.)

3. Press the red button on the top of BECI and read the relative bearing condition on BECI's color coded meter.
4. BECI indicates relative bearing condition in two ways: color code and numbered scale (1-5).

The color codes indicate a "rough" reading of the bearings' condition. Green; bearing in service, good. Yellow, bearing with defects, warning. Red, bearing with major defects, danger.

The numbered scale allows the user to place a numerical value\*\* on the readings in the various color bands. The numerical readings can be used to look for trends or changes in the bearing condition. The following values can be used as an estimate of the bearing condition. Do not use these values as absolute values, as the bearing geometry (inner to outer race diameter ratio, shaft size, roller element type, rolling element size, etc.) can affect these values.

Bearing new .....	.2 to .6 G's
Bearing in service, good ....	.5 to 1.0 G's
Bearing with defects .....	1.0 to 2.5 G's
Bearing shutdown .....	3.0 to 5.0 G's

5. Although the above values are only general, absolute values for a certain size and type of bearing in a specific machine can be determined by accurately recording a history of the "Bearing Test" values of vibration until a visual inspection of the bearing is done. The condition of the bearing can then be referenced to the "Bearing Test" readings, and can be used as a gage for evaluating the condition of the bearing for future readings.

Note: \*\* The numerical values indicated on BECI's meter are G's (acceleration) readings above 300 Hz.

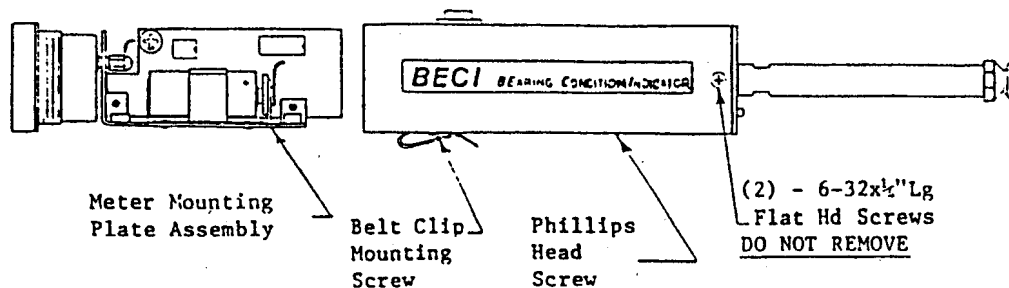
Operational Tips

1. Check BECI's battery condition before each day of readings. To test the battery condition, press the small black button at the base on the unit (next to the probe). The reading on the meter must be 2.0 or greater. If the reading is less than 2.0 the battery must be replaced.
2. Readings taken for comparative purposes must be taken at the same location of any particular bearing. Mark the reading location with paint or indelible marking so subsequent readings are taken at the same exact location.
3. BECI cannot separate gear defects from bearing problems. Care must be used when checking bearings that are in close proximity to gear increasers or reducers.
4. Use a firm steady pressure to hold BECI to the bearing cap. A good mechanical transmission of vibration to BECI is essential for correct readings.
5. If the location of the bearing cap makes it inaccessible, take readings at the closest possible point which has a solid mechanical connection to the bearing.
6. BECI's meter can fluctuate if used on machines with excessive vibration levels. If this condition exists for your particular application, damped meter movements are available from Vitec.
7. Periodically check tightness of probe to assure it has not become loose with use.
8. Make sure BECI is stored properly on its side in its carrying case. If stored with the orange "test" button down or up, the button will be depressed and battery life will be reduced.

BECI, BEARING CONDITION INDICATORBATTERY REPLACEMENT

CARE MUST BE USED WHEN REPLACING THE BECI BATTERY. Because of the high density design of the BECI, partial disassembly of the unit is required to replace the battery. Battery replacement should be done in a clean, dry area only.

1. Refer to assembly drawing.
2. Replacement battery must be heavy duty 9 volt battery, Duracell type MN1604B or equivalent.
3. Two screws must be removed to gain access to the battery. These screws are located on the "bottom side" of the BECI unit. The side opposite the "push-to-read" button.
4. Remove the belt clip mounting screw, using a 5/64" allen wrench. Remove the phillips head screw located approximately 2 3/4" away from the belt clip mounting screw.  
IMPORTANT - use care after removing these two screws - do not tip the unit - the meter mounting plate could slide out.
5. CAREFULLY - SLOWLY - Slide the meter mounting plate sub assembly out of the BECI body - ONLY FAR ENOUGH TO GAIN ACCESS TO THE BATTERY. This can be done by grasping the meter and pulling lightly. DO NOT USE EXCESSIVE FORCE. Pulling the meter mounting plate out too far will damage internal wiring.
6. Carefully pry up the old battery - do not touch electronic components or adjustment pots. It is normally easier to pry the battery up from the front edge near the positive, red, terminal.
7. Snap in the new battery making sure the positive terminal is connected to the red terminal on the battery holder.
8. Push the battery test button as a check for proper installation of the battery.
9. Push the meter mounting plate assembly back into the BECI body. - Use care not to tangle or break internal wires.
10. Re-Install and tighten the two screws. - Do not over tighten.





Instruction Manual No. 412537-203 Sh. (a)

Rev. Ltr. \_\_\_\_\_ Date 1/89 By: \_\_\_\_\_

## RECEIVING & HANDLING

### ACCEPTANCE

Vitec terms of sale, in all instances, are F.O.B. point of origin, freight prepaid. Thoroughly inspect this equipment before accepting shipment from the transportation company. If any of the goods called for in the bill of lading or express receipt are damaged or the quantity is short, do not accept them until the freight or express agent makes an appropriate notation on your freight bill or express receipt. Request him to make an inspection. Claims for loss or damage in shipment must not be deducted from the Vitec invoice, nor should payment of the Vitec invoice be withheld awaiting adjustment of such claims since the carrier guarantees safe delivery. If equipment is not to be used within three (3) weeks, repack and adhere to the conditions of ANSI/ASME specifications N45.2.2 (Level B).

If considerable damage has been incurred to your shipment and the situation is urgent, contact the nearest Vitec District Office for assistance.

### UNPACKING AND STORAGE

Store equipment per ANSI/ASME Specifications N45.2.2 (Level B). Unpack only for use or periodic energizing.

### PRODUCT WARRANTY

Except as otherwise provided in Vitec's Standard Condition of sale, all new apparatus sold by the company is warranted to be free from defects in material and workmanship and to conform to any applicable drawings and specifications approved by the company for a period of one year from date of shipment to original user or 18 months from date of shipment by company to buyer, whichever period is shorter.

If within this period the company receives from the buyer written notice of any alleged defect in any such apparatus and if this apparatus is found not to be in conformity with this warranty (the buyer having provided the company with a reasonable opportunity to perform any appropriate tests thereon) the company will, at its option and expense, either repair the same or supply a replacement.

The company under either option shall have the right to require the buyer to deliver the apparatus for this purpose to a designated service center and the buyer shall pay all charges for inbound and outbound transportation and for services of any kind, diagnostic or otherwise, excepting only the direct and actual cost of apparatus repair or replacement as provided above.

Apparatus sold but not manufactured by the company will be warranted as to defects in material and workmanship consistent with the warranty policy of the original manufacturer of the apparatus.

**BECI**  
**OPERATING**  
**INSTRUCTIONS**



**Protecting the machines of production  
for more than a quarter-century**  
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(216) 464-4670 · Fax: (216) 464-5324