



U.S. Department of Transportation

Federal Highway Administration

MAR 29 1995

400 Seventh St., S.W.
Washington, D.C. 20590

Refer to: HNG-14

Mr. C. Richard Briden
Engineering Manager
P&K Pole Products
84 Foundry Street
Newark, New Jersey 07105

Dear Mr. Briden:

Thank you for your April 25 letter requesting Federal Highway Administration's (FHWA) acceptance of your company's aluminum breakaway bases. Your letter was accompanied by seven test reports by the Southwest Research Institute dated February or March 1995, and video documentation on each test. Additional information was submitted on June 12 and August 8 in response to our requests.

Pendulum testing was conducted to assess the breakaway performance of the bases. Requirements for breakaway supports are found in the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. Testing guidelines are found in the National Cooperative Highway Research Program Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features." Both have been adopted by the FHWA.

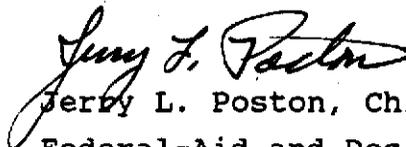
You requested individual acceptance letters for each base. This letter is for the hardware tested in PK-106, dated February 1995. A summary of the test data is shown below, and drawings of the cast aluminum transformer base are enclosed.

Test Number	PK-106
Support Pole Wall Thickness, mm (in)	Aluminum Shaft 6.35 (0.250)
Pole Butt Diam. and Base Designation P&K Drawing No.	10" Cast Al Transformer Base Type TB-2CBA Dwg #G-104813
Bolt Circle Diameter, mm (in) Test Article Mass, kg (wt, lbs)	381 (15) 246 (542)
Mounting Height, m (ft) Vehicle Mass, kg (weight, lbs)	15.3 (52.2) 820 (1808)
Test Speed, km/h (mph)	35.28 (21.9)
Occupant Imp. Speed m/s (fps) Vehicle Velocity Change m/s (fps) Estimated 100 km/h Occup. Imp. Speed	1.5 (4.9) (@0.40 sec) 1.5 (4.9) 2.8 (9.3)
Stub Height, mm (in)	51 (2.5)

The results of this test and the high-speed extrapolation meet the change in velocity and stub height requirements adopted by AASHTO and the FHWA. Therefore, the tested aluminum breakaway base described above is acceptable for use on Federal-aid highway projects, within the range of conditions tested, if proposed by a State.

Our acceptance is limited to the breakaway characteristics of the system and does not cover its structural features. Presumably, you will supply potential users with sufficient information on structural design and installation requirements to ensure proper performance. We anticipate that the States will require certification from P&K Pole Products that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as those used in the tests, and that they will meet the FHWA change in velocity requirements.

Sincerely yours,



Jerry L. Poston, Chief

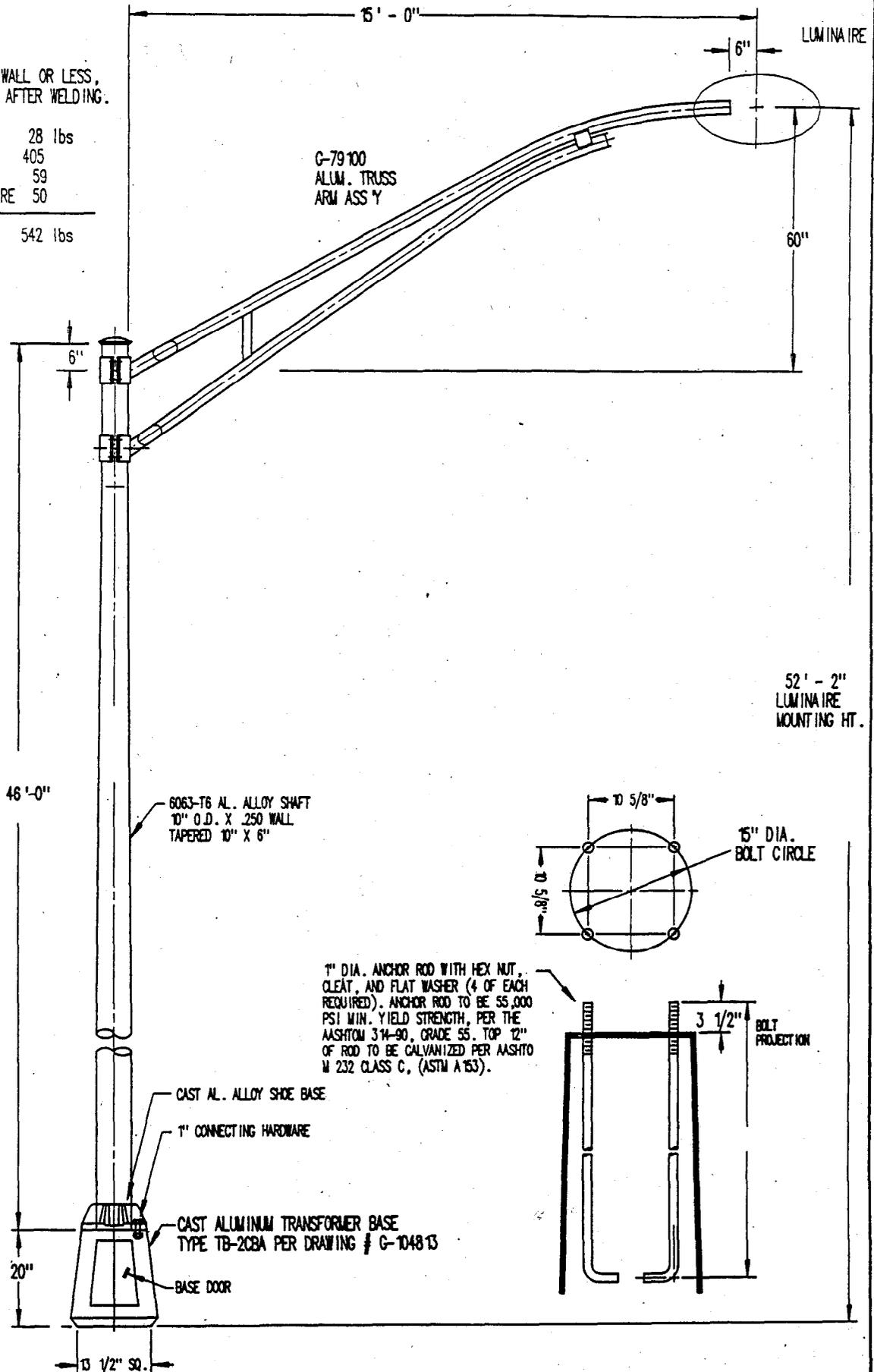
Federal-Aid and Design Division

Enclosure

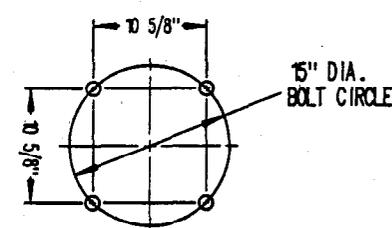
NOTE:

1. USE 4043 WELD WIRE
2. 6063 ASSEMBLY .375 WALL OR LESS, TO BE HEAT TREATED AFTER WELDING.
3. WEIGHTS

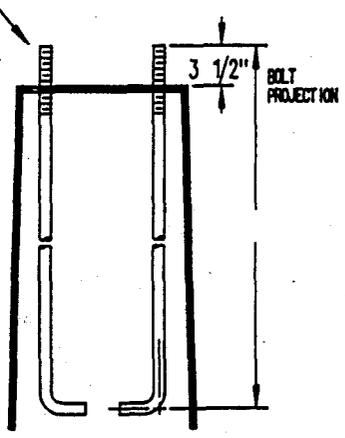
T-BASE	28 lbs
POLE	405
ARM	59
LUMINAIRE	50
TOTAL	542 lbs



52' - 2"
LUMINAIRE
MOUNTING HT.

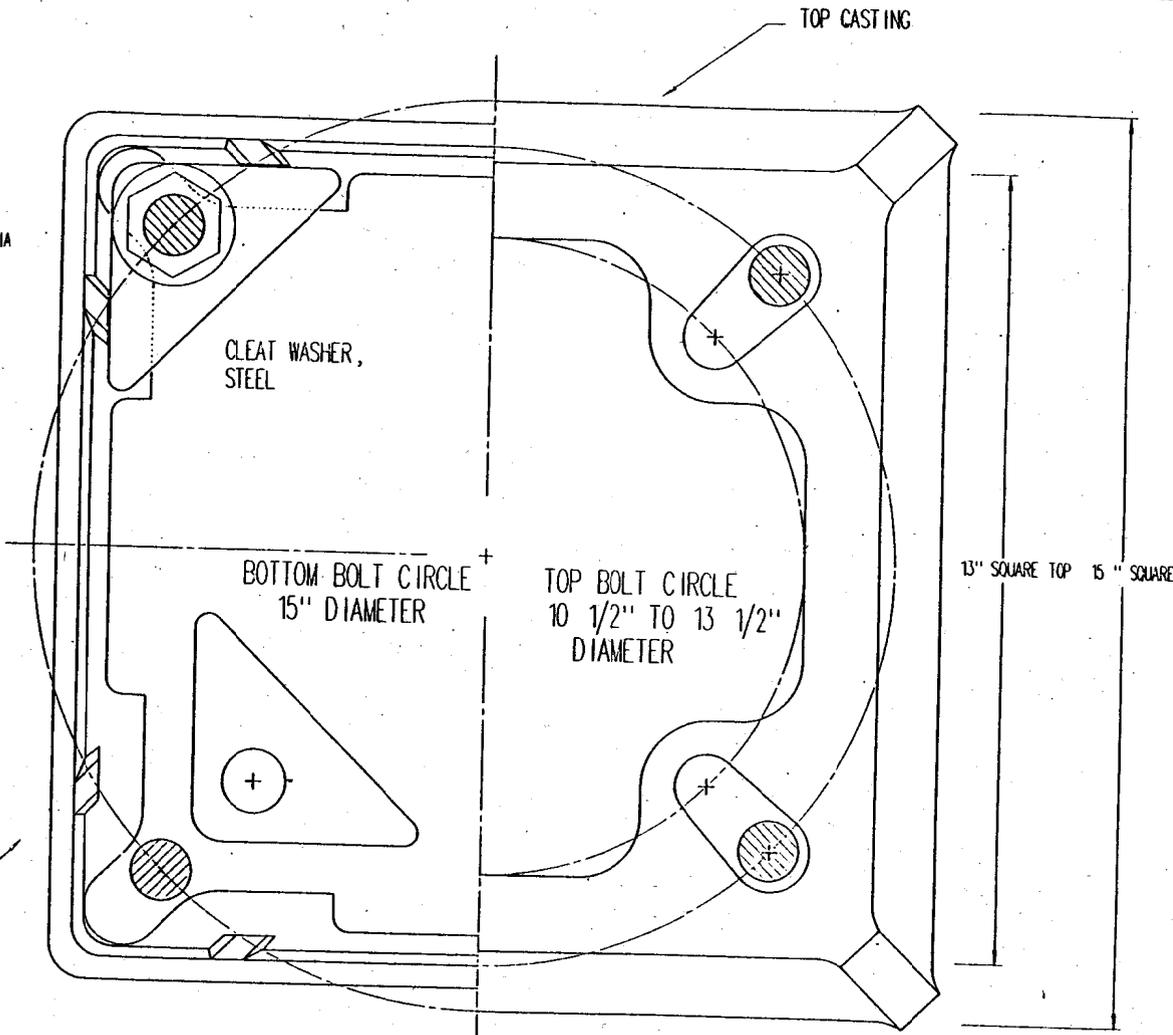
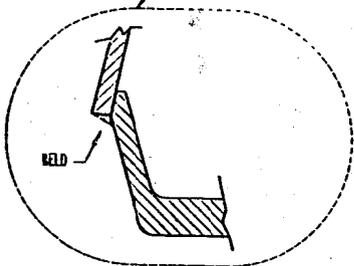
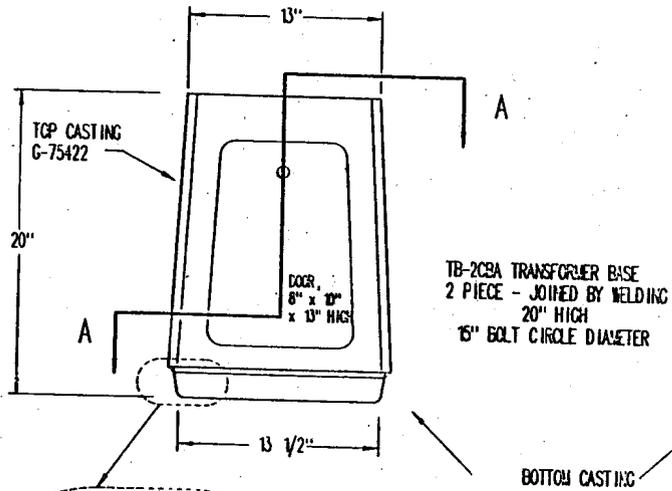
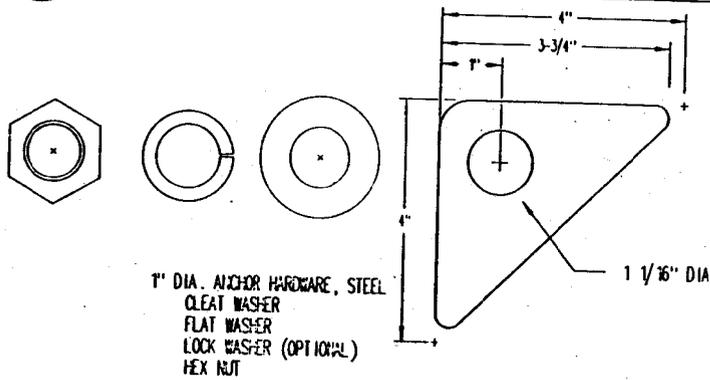


1" DIA. ANCHOR ROD WITH HEX NUT, CLEAT, AND FLAT WASHER (4 OF EACH REQUIRED). ANCHOR ROD TO BE 55,000 PSI MIN. YIELD STRENGTH, PER THE AASHTO 314-90, GRADE 55. TOP 12" OF ROD TO BE GALVANIZED PER AASHTO M 232 CLASS C, (ASTM A 153).



ALT.	DESCRIPTION	DATE	BY	CHK
ALTERATIONS				
TEST DATE 9-15-1994				
TEST POLE ASS Y # 06				
RTBOX524AN 5T188				
PARK POLE PRODUCTS				
84 Foundry St., Newark, N.J.				
COOPER				
ESTER-SOUTHWEST RESEARCH INST.				
PROJECT SIZE				
PRINTED ON TEMPLAT				
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS				
FR.	MM.	IN.		
±.015	±.025	±.005		
±.005	±.010	±.002		
±.002	±.005	±.001		
SCALE NONE				
C-104802				

Figure 2. Manufacturer's Drawing of Test Article

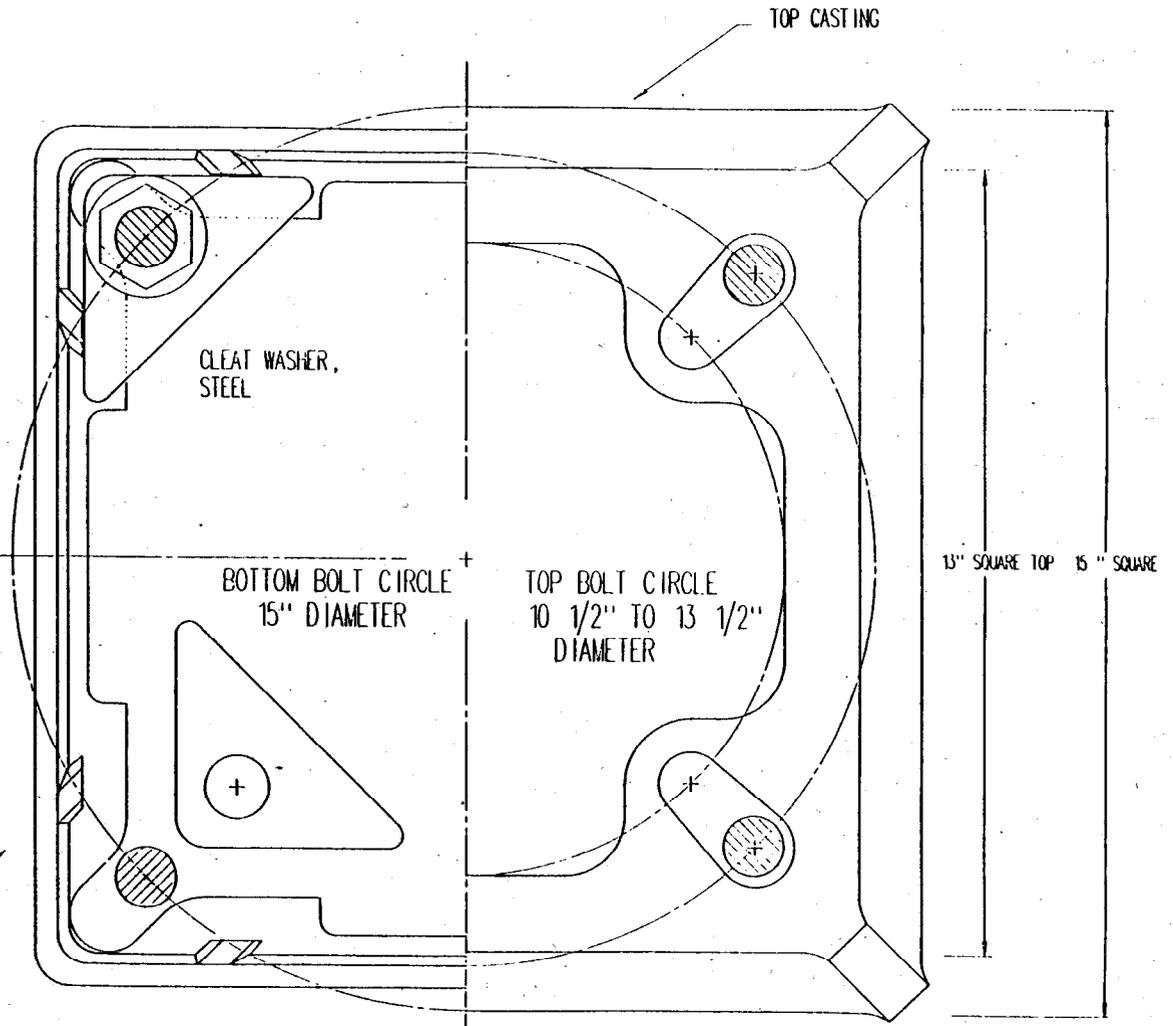
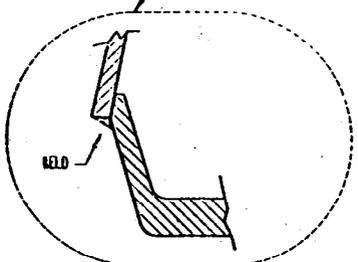
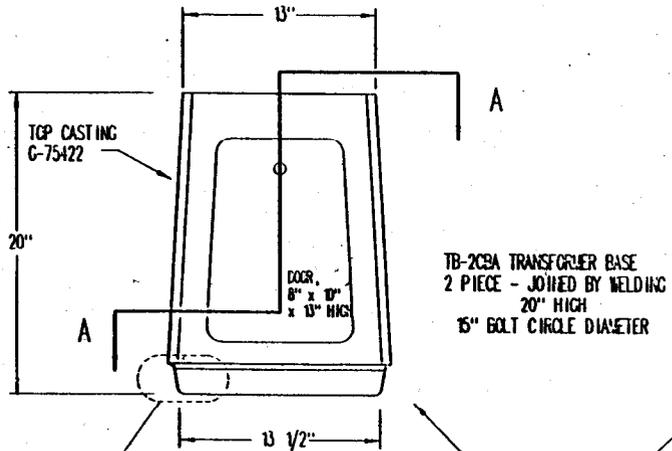
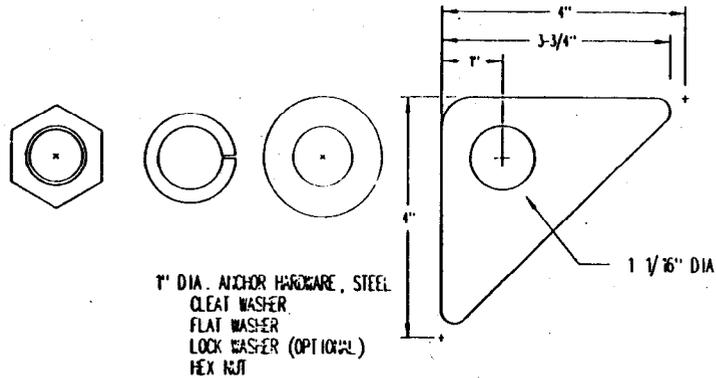


VIEW AA

FORMERLY DEVELOPMENTAL
DRAWING # CRISTEMP/CRISTEM19.1.DWG

ALTERATIONS				MATERIAL	FINISH	TOLERANCES UNLESS OTHERWISE SPECIFIED	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	TREATMENT	STOCKING	REVISIONS	DATE	BY	CHKD BY	APP'D BY	
NO.	DESCRIPTION	DATE	BY												
				356-T6 CAST ALUM. ALLOY											
				2 PARTS AS CAST & WELDED											
				T6											
PK&P PRODUCTS 64 Foundry St. Newark N.J.											TITLE TB-2CBA CAST TRANSFORMER BASE		G-104813		
											HVE				

Figure 2. Manufacturer's Drawing of Test Article (Continued)



VIEW AA

FORERLY DEVELOPMENTAL
 DRAWING / ORITEMP/CBITEM1.DWG

PER POLE PRODUCTS 81 Foundry St Newark N.J.	
TB-2CBA CAST TRANSFORMER BASE	
G-1048 13	
NOTE	

350-T6 CAST ALUMI ALLOY	
2 PARTS AS CAST & WELDED	
T6	
CHECKED BY	APPROVED BY
DRAWN BY	DATE

Figure 2. Manufacturer's Drawing of Test Article (Continued)