

LANSDALE TUBE COMPANY  
Radio and Television Tubes  
LANSDALE, PENNSYLVANIA

12WP4 CATHODE-RAY TUBE

The 12WP4 is a magnetic focus and magnetic deflection direct view picture tube specifically designed for low cost television receivers. It features a small diameter neck and uses a specially designed deflection yoke requiring unusually low power for deflection. The bulb has been designed for low cost and low weight. The overall length of the tube is 18 inches. Other features are a standard 9-pin miniature stem accommodating a low cost socket, a triode ion trap gun using a single field ion trap magnet and a gray tinted face plate having approximately 65% light transmission:

DATA

GENERAL CHARACTERISTICS

Electrical Data

Heater Voltage. . . . .	6.3	Volts	Focusing Method . . . . .	Magnetic
Heater Current. . . . .	0.6	$\pm 10\%$ Ampere	Deflecting Method . . . . .	Magnetic
			Deflecting Angle (Approx.) . . . . .	55°

Phosphor. . . . .	P4	Direct Interelectrode Capacitances, Approx.	
Fluorescence . . . . .	White	Cathode to all other electrodes . . . . .	3.22 uuf
Persistence . . . . .	Medium	Grid #1 to all other electrodes . . . . .	3.19 uuf

External conductive coating to anode capacitance. . . . . 2000 Max. uuf  
750 Min. uuf

Mechanical Data

Overall length . . . . .	17 3/4	$\pm 1/4$	Inches
Greatest diameter of bulb. . . . .	12 7/16	$\pm 1/8$	Inches
Useful screen diameter . . . . .	11 1/4		Inches
Bulb Contact. . . . .	Special		
Base . . . . .	E9-1		
Basing . . . . .	See Diagram		
Bulb contact alignment . . . . .	40°	$\pm 50$ clockwise from plane that is midpoint between Pins #1 and #9 when viewed from bottom.	

MAXIMUM RATINGS - Design Center Values

Anode Voltage. . . . .	12,000	Max. Volts D-C
Grid #1 Voltage. . . . .		
Negative - Bias value. . . . .	125	Max. Volts D-C
Positive - Bias value. . . . .	0	Max. Volts D-C
Positive - Peak value. . . . .	2	Max. Volts
Peak-Heater Cathode Voltage <sup>1</sup>		
Heater negative with respect to cathode		
During warm-up period not to exceed 15 seconds . . . . .	410	Max. Volts D-C
After equipment warm-up period . . . . .	140	Max. Volts D-C
Heater positive with respect to cathode. . . . .	140	Max. Volts D-C

TYPICAL OPERATING CONDITIONS

Anode voltage . . . . .	10,000	Volts D-C
Grid #1 Voltage <sup>2</sup> . . . . .	-27 to -63	Volts D-C
Permanent magnet focus unit <sup>3</sup> . . . . .	240	Gauss
Ion trap field strength at center of neck <sup>4</sup> . . . . .	95	Gauss

MAXIMUM CIRCUIT VALUES

Grid #1 circuit resistance. . . . .	1.5	Max. Megohms
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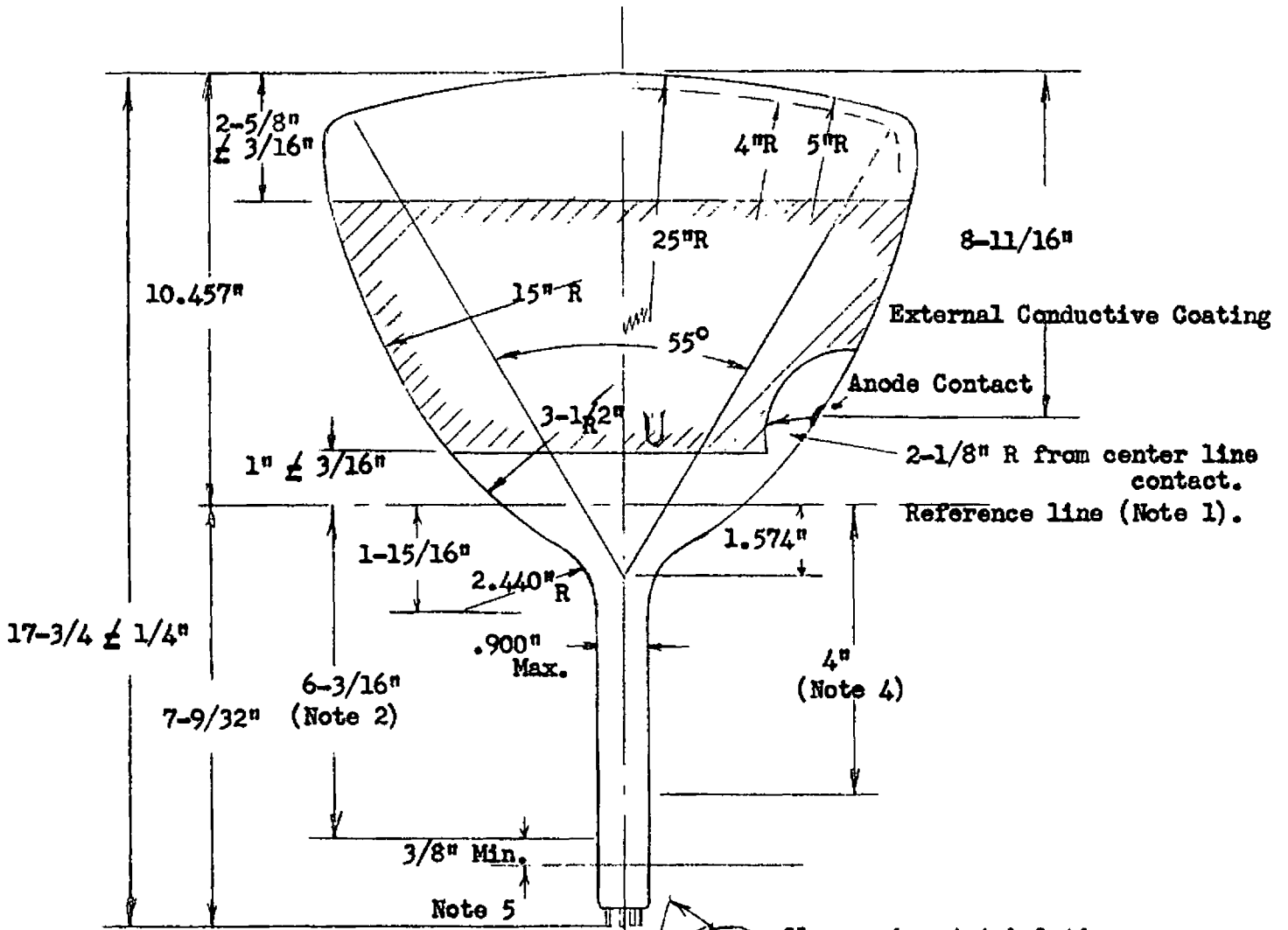
12WP4  
NOTES

1. Cathode should be returned to one side or to the mid-tap of the heater transformer winding.
2. Visual extinction of undeflected focused spot.
3. For standard focus magnet, Philco Part No. 76-6126-5, or equivalent, with the Combined Grid No. 1 - bias voltage and video-signal voltage adjusted to produce a highlight brightness of 35 foot lamberts on a 6" x 8" picture area. Distance (D) shall be  $\frac{4}{8}$  inches from the reference line to the center of the air gap.  $\rightarrow 4/8$
4. For standard ion trap, Philco Part No. 76-~~6240~~-1, or equivalent.
5. Identification line on bulb extending from top of grid cylinder to base is aligned with vacant pin #10 and tube axis and indicates major axis of elliptical section of grid cylinder to be used as guide in adjusting ion trap magnet.

DRAWING NOTES

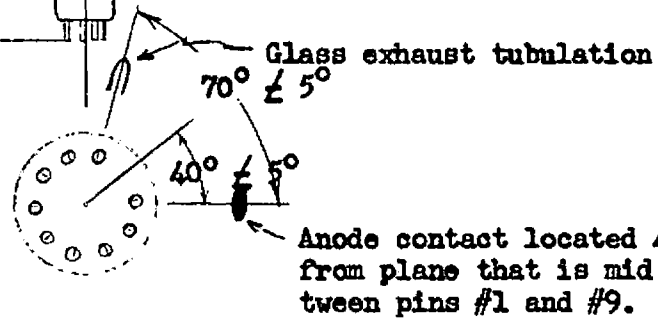
- NOTE 1: The reference line is the line determined by plane x-x of the gauge shown in Dwg. 217-0003, when such gauge is moved along the neck until it comes to rest against the body of the bulb.
- NOTE 2: Plane of #1 grid aperture.
- NOTE 3: Keep this space clear for single field ion trap magnet.
- NOTE 4: Location of deflection yoke and focusing coil should be within this space.

12WP4



BASE CONNECTIONS

1. Grid
2. N. C.
3. Heater
4. Grid
5. Cathode
6. Grid
7. N.C.
8. Heater
9. Grid

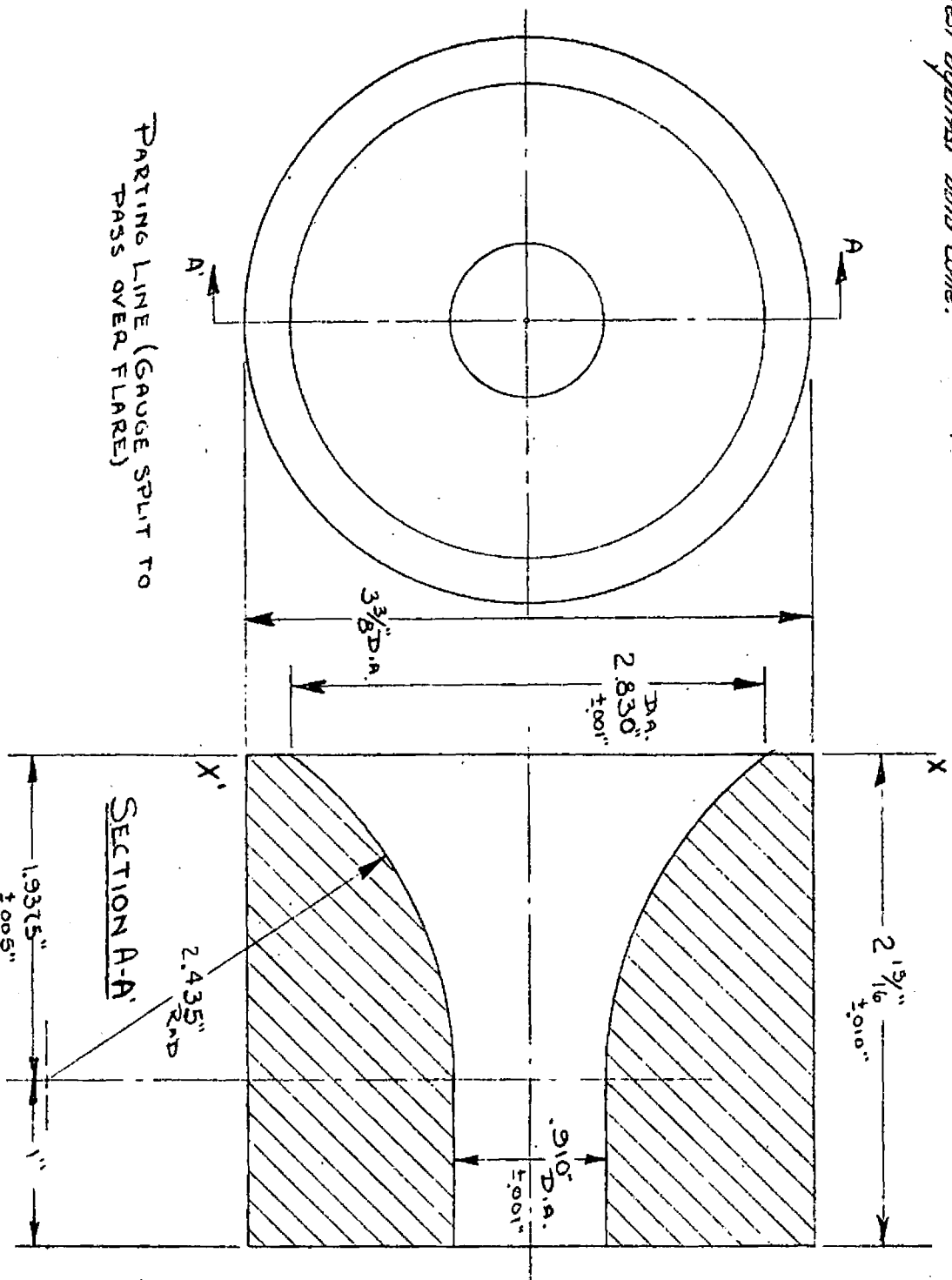


BOTTOM VIEW OF BASE

See next page for notes.

GLASS TUBULATION DESIGN

Reference Line is determined by position where the line X-X' on reference line gauge will rest against bulb cone.



PARTING LINE (GAUGE SPLIT TO PASS OVER FLARE)

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QTY	MATERIAL	SPECIFICATION	FINISH	SUPERSEDES	PART NO.	APPO.
1				217-0003-01-00	217-0003-01-00	
				E-1889	E-1889	

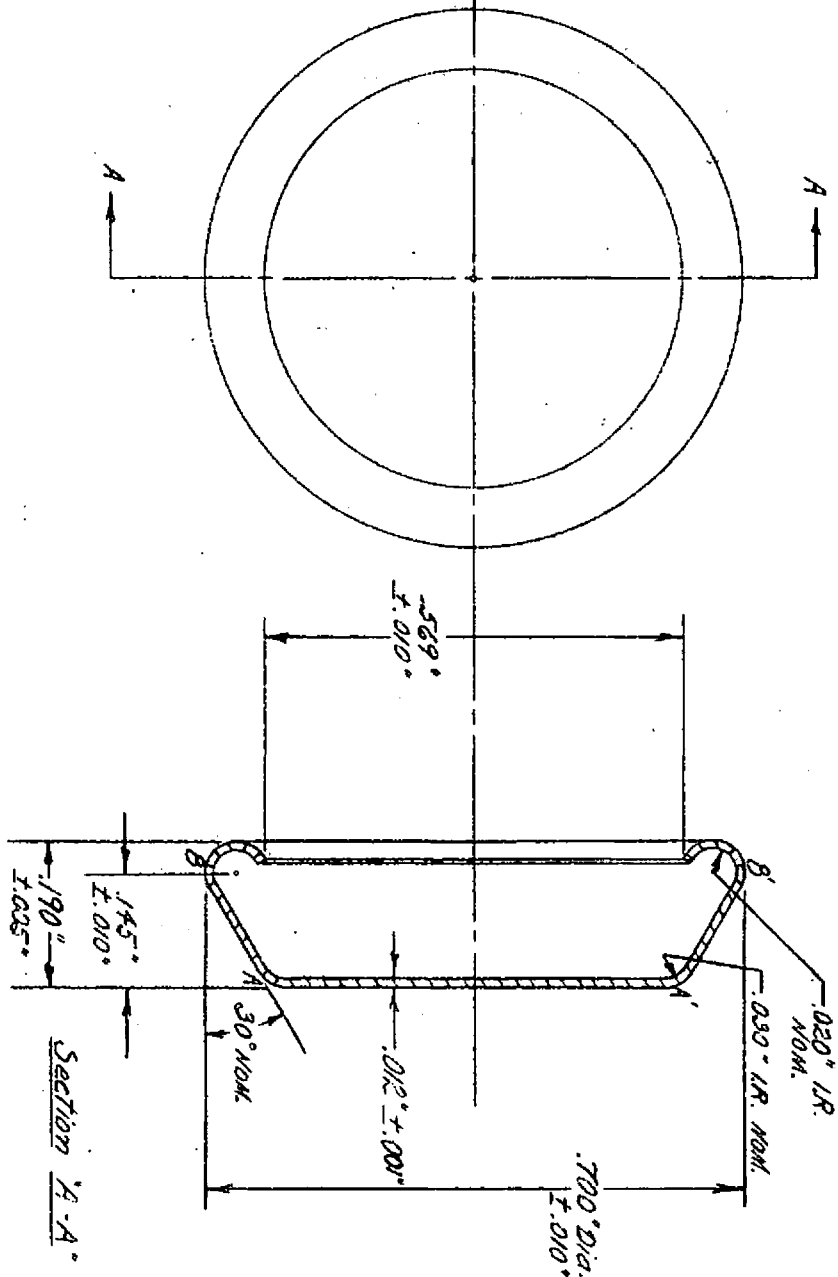
ADDITIONAL INFORMATION:

ISSUE NO.	CLASSIFICATION:	RECORD OF CHANGES	DATE
		REP. CHANGE NOTICE	
		02 C-551	Note Added

UNDERSLINED DIMENSIONS ARE NOT TO SCALE. UNLESS OTHERWISE SPECIFIED: ALL PARTS MUST BE FREE FROM BURRS. TRUE CENTERS WITHIN .001" OF CENTER LINE UNLESS OTHERWISE SPECIFIED. TOLERANCES ARE DECIMAL DIMENSIONS ±.001 OR ±.0005 WHICHEVER IS SMALLER. ANGLES ± 1/2°

ORIGINALLY DESIGNED FOR TUBE TYPE: L2053

MAIN TITLE: SPLIT RING GAUGE  
 SUB TITLE: FOR 10 1/2" D. 60° BOURN NECK  
 SUPERSEDES: NONE  
 SCALE: FULL  
 DATE: 1-6-50  
 TRACED: C.W.D. 1-9-50  
 CHECKED: C.W.D. 1-9-50  
 D.W.G. NO: 6000-212  
 DO NOT USE THIS NUMBER WHEN REFERRED TO PART



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DATE	MATERIAL	SPECIFICATION	FINISH	SUPERSEDES	PART NO.	APPRO.
6-5-50	STEEL	A.A. ALLOY		052-2556-02-21		
6-5-50	STEEL	#2 ALLOY		052-2556-02-21		

DATE	DATE	DATE	DATE
6-5-50	6-5-50	6-5-50	6-5-50

MAIN TITLE  
Contact Bit

SCALE: 4:1

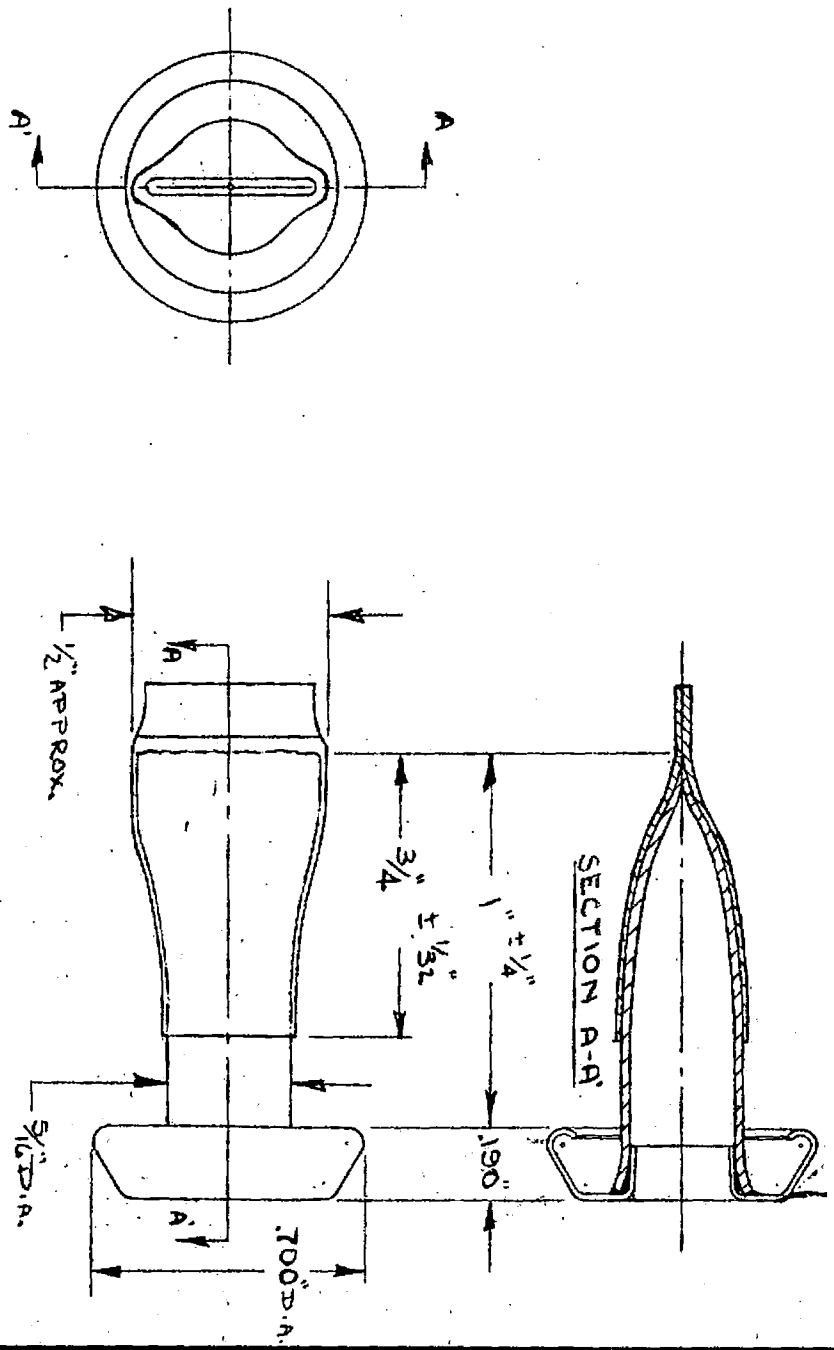
APPRO. DATE  
9256-250 6-7-50

DO NOT USE THIS NUMBER WHEN REFERRING TO PART.

**ADDITIONAL INFORMATION:**  
Surface A-A to be flat + free of wrinkles, grooves + die marks. Outside of button in area A-B, A-B must be free of scratches, tool + die marks.

REF.	CHANGE DETAIL	RECORD OF CHANGES	DATE
02	C-526	Shift Dia was 592 ± .010 - Material Alled	2-30
03	C-536	Lip I.D. was .030 - Height was .170 ± .010	8-21

15  
15  
15



<b>ADDITIONAL INFORMATION:</b>		
ISSUE NO.	CLASSIFICATION:	
<b>RECORD OF CHANGES</b>		<b>DATE</b>
REF.	CHANGE NOTICE	

UNDERLINED DIMENSIONS ARE NOT TO SCALE.  
 UNLESS OTHERWISE SPECIFIED:  
 ALL PARTS MUST BE FREE FROM BURRS.  
 TRUE CENTERS WITHIN .001" OF CENTER LINE  
 UNLESS OTHERWISE SPECIFIED. TOLERANCES  
 ARE DECIMAL DIMENSIONS + .5% OR + .000"  
 WHICHEVER IS SMALLER.  
 FRACTIONAL DIMENSIONS + .018"  
 ANGLES ± 1/2°

ORIGINALLY DESIGNED FOR TUBE TYPE: **L22053**

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DATE	MATERIAL	SPECIFICATION	FINISH	SUPERSEDES	PART NO.	APPD.

<b>MAIN TITLE</b> AVOID CONTACT OF EXHAUST			
<b>SUB TITLE</b> TURBULENCE			
SUPERSEDES	SCALE: 2:1		
DRAWN <b>H.E.G.</b>	DATE 1-8-50	APPD.	DATE
CHECKED <b>AW</b>	DATE 1-12-50	DWG. NO. <b>13-65027</b>	
TRACED			DO NOT USE THIS NUMBER WHEN REFERRING TO PART