



17AVP4-A/17ATP4-A PICTURE TUBE

17AVP4-A

RECTANGULAR GLASS TYPE
LOW-VOLTAGE ELECTROSTATIC FOCUS

ALUMINIZED SCREEN
MAGNETIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts

Current. $0.6 \pm 10\%$ amp

Direct Interelectrode Capacitances:

Grid No.1 to all other electrodes. 6 μf

Cathode to all other electrodes. 5 μf

External conductive coating to ultor $\left\{ \begin{array}{l} 1500 \text{ max. } \mu\text{f} \\ 1000 \text{ min. } \mu\text{f} \end{array} \right.$ ←

Faceplate, Spherical Filterglass

Light transmission (Approx.) 74%

Phosphor (For curves, see front of this Section). . P4—Sulfide Type
Aluminized

Fluorescence White

Phosphorescence. White

Persistence. Short

Focusing Method. Electrostatic

Deflection Method. Magnetic

Deflection Angles (Approx.):

Diagonal 90°

Horizontal 85°

Vertical 68°

Electron Gun Ion-Trap Type Requiring
External Single-Field Magnet

Tube Dimensions:

Overall length $15-5/8" \pm 3/8"$

Greatest width $15-25/64" \pm 1/8"$

Greatest height. $12-9/32" \pm 1/8"$

Diagonal $16-5/8" \pm 1/8"$

Neck length. $6-1/2" \pm 3/16"$

Screen Dimensions (Minimum):

Greatest width $14-5/16"$

Greatest height. $11-1/8"$

Diagonal $15-9/16"$

Projected area 149 sq. in.

Weight (Approx.) 15 lbs

Operating Position Any

Cap. Recessed Small Cavity (JETEC No. J1-21)

Bulb J133 F1/G1 ←

Base . . Small-Shell Duodecal 6-Pin (JETEC Group 4, No. B6-63) ←

Basing Designation for BOTTOM VIEW 12L

Pin 1—Heater

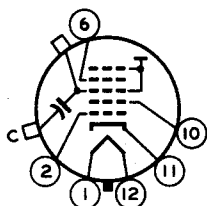
Pin 2—Grid No.1

Pin 6—Grid No.4

Pin 10—Grid No.2

Pin 11—Cathode

Pin 12—Heater



Cap—Ultor

(Grid No.3,
Grid No.5,
Collector)

C—External
Conductive
Coating

← Indicates a change.



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GRID-DRIVE[▲] SERVICE

Unless otherwise specified, voltage values are positive
with respect to cathode

Maximum Ratings, Design-Center Values:

ULTOR VOLTAGE	16000 max.	volts
GRID-No.4 (FOCUSING) VOLTAGE:		
Positive value.	1000 max.	volts
Negative value.	500 max.	volts
GRID-No.2 VOLTAGE	500 max.	volts
GRID-No.1 VOLTAGE:		
Negative-peak value	200 max.	volts
Negative-bias value	140 max.	volts
Positive-bias value	0 max.	volts
Positive-peak value	2 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode:		
During equipment warm-up period not		
exceeding 15 seconds.	410 max.	volts
After equipment warm-up period.	180 max.	volts
Heater positive with respect to cathode .	180 max.	volts

Equipment Design Ranges:

With any ultor voltage (E_{c5k}) between 12000[#] and 16000 volts
and grid-No.2 voltage (E_{c2k}) between 200 and 500 volts

Grid-No.4 Voltage for focus with ultor current of 100 μ a	-0.4% to +2.2% of E_{c5k}	volts
Grid-No.1 Voltage for visual extinction of focused raster.	-9.3% to -24% of E_{c2k}	volts
Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak positive)	9.3% to 24% of E_{c2k}	volts
Grid-No.4 Current	-25 to +25	μ a
Grid-No.2 Current	-15 to +15	μ a
Ion-Trap Magnet Current (Average) ^{**}	$\sqrt{\frac{E_{c5k}}{16000}} \times 30$	ma
Minimum Field Strength of PM Ion-Trap Magnet [§]	$\sqrt{\frac{E_{c5k}}{16000}} \times 33$	gausses
Field Strength of Adjustable Centering Magnet.	0 to 8	gausses

[▲], [#], ^{**}, [§]: See next page.



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Examples of Use of Design Ranges:

With ultor voltage of	14000	16000	volts
and grid-No.2 voltage of	300	300	volts
Grid-No.4 Voltage for focus with ultor current of 100 μ a	-55 to +310	-65 to +350	volts
Grid-No.1 Voltage for visual extinction of focused raster.	-28 to -72	-28 to -72	volts
Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak positive)	28 to 72	28 to 72	volts
Minimum Field Strength of PM Ion-Trap Magnet.	31	33	gausses

Maximum Circuit Values:

Grid-No.1-Circuit Resistance.	1.5 max.	megohms
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CATHODE-DRIVE[■] SERVICE

Unless otherwise specified, voltage values are positive with respect to grid No.1

Maximum Ratings, Design-Center Values:

ULTOR-TO-GRID-No.1 VOLTAGE.	16000 max.	volts
GRID-No.4-TO-GRID-No.1 VOLTAGE:		
Positive value.	1000 max.	volts
Negative value.	500 max.	volts
GRID-No.2-TO-GRID-No.1 VOLTAGE.	640 max.	volts
GRID-No.2-TO-CATHODE VOLTAGE.	500 max.	volts
CATHODE-TO-GRID-No.1 VOLTAGE:		
Positive-peak value	200 max.	volts
Positive-bias value	140 max.	volts
Negative-bias value	0 max.	volts
Negative-peak value	2 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode:		
During equipment warm-up period not exceeding 15 seconds.	410 max.	volts
After equipment warm-up period.	180 max.	volts
Heater positive with respect to cathode .	180 max.	volts

Equipment Design Ranges:

With any ultor-to-grid-No.1 voltage (E_{c5g1}) between 12000
and 16000 volts and grid-No.2-to-grid-No.1 voltage (E_{c2g1})
between 220 and 640 volts*

Grid-No.4-to-Grid-No.1 Voltage for focus with ultor current of 100 μ a	0% to 2.6% of E_{c5g1}	volts
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▲, #, **, §, ■: See next page.



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Cathode-to-Grid-No.1 Voltage for visual extinction of focused raster	8.5% to 19.4% of E_{c2g1}	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak negative)	8.5% to 19.4% of E_{c2g1}	volts
Grid-No.4 Current	-25 to +25	μ a
Grid-No.2 Current	-15 to +15	μ a
Ion-Trap Magnet Current (Average)**	$\sqrt{\frac{E_{c5g1}}{16000}} \times 30$	ma
Minimum Field Strength of PM Ion-Trap Magnet§	$\sqrt{\frac{E_{c5g1}}{16000}} \times 33$	gausses
Field Strength of Adjustable Centering Magnet.	0 to 8	gausses

Examples of Use of Design Ranges:

<i>With ultor-to-grid-No.1 voltage of</i>	14000	16000	volts
<i>and grid-No.2-to-grid No.1 voltage of</i>	300	300	volts
Grid-No.4-to Grid-No.1 Voltage for focus with ultor current of 100 μ a	0 to 365	0 to 415	volts
Cathode-to-Grid-No.1 Voltage for visual extinction of focused raster	25 to 58	25 to 58	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak negative)	25 to 58	25 to 58	volts
Minimum Field Strength of PM Ion-Trap Magnet.	31	33	gausses

Maximum Circuit Values:

Grid-No.1-Circuit Resistance.	1.5 max.	megohms
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▲ Grid drive is the operating condition in which the video signal varies the grid-No.1 potential with respect to cathode.

* Brilliance and definition decrease with decreasing ultor voltage or ultor-to-grid-No.1 voltage. In general, the ultor voltage or ultor-to-grid-No.1 voltage should not be less than 12,000 volts.

** For JETEC Ion-Trap Magnet No.117, or equivalent, located with the trailing edge of the pole pieces located over the gap between grid No.1 and grid No.2 and rotated to give maximum brightness.

§: See next page.



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§ For specimen PM ion-trap magnet, such as Heppner Model No.E437, or equivalent, located in optimum position and rotated to give maximum brightness. For a given equipment application, the tolerance range for the strength of the PM ion-trap magnet should be added to the minimum value. The maximum strength of this magnet should not exceed the specified minimum value by more than 6 gaussses. This procedure will insure use of a PM ion-trap magnet allowing adequate adjustment to permit satisfactory performance without loss of highlight brightness.

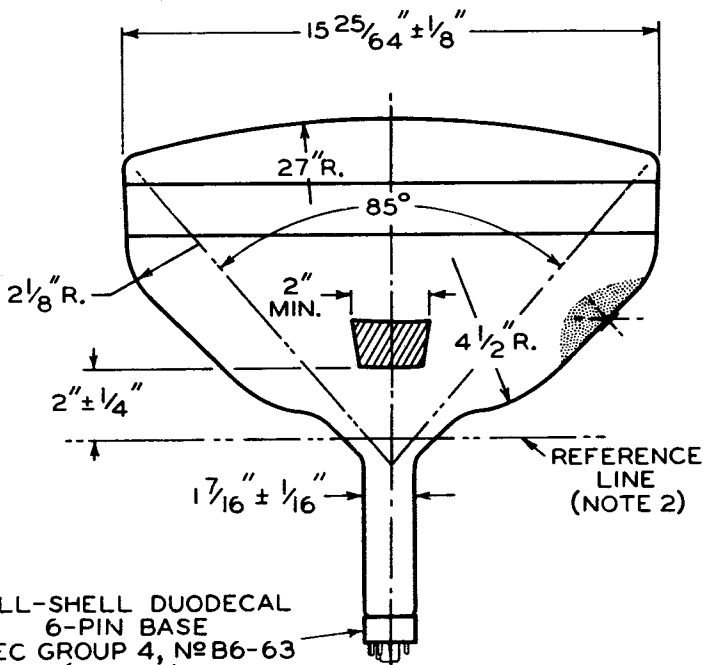
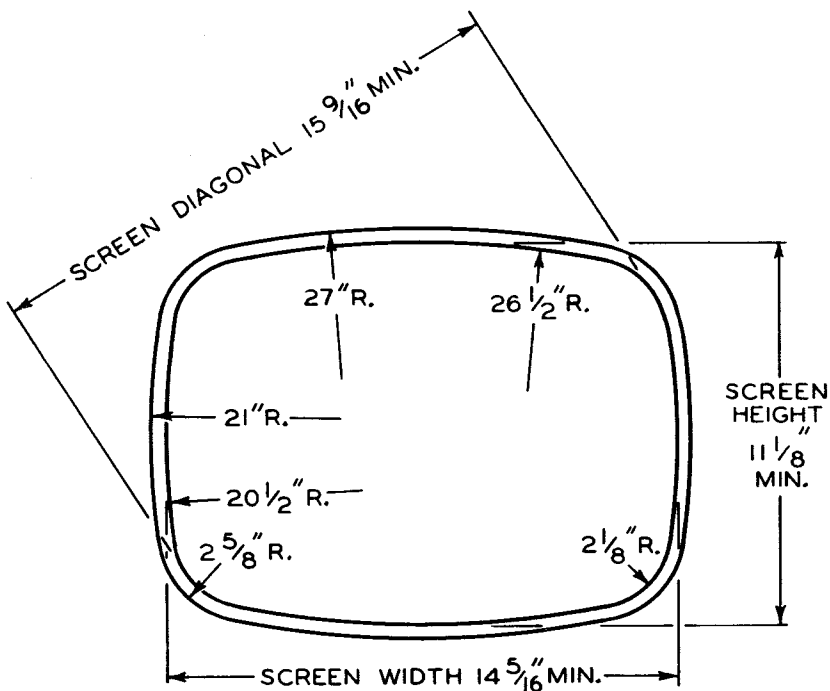
□ Cathode drive is the operating condition in which the video signal varies the cathode potential with respect to grid No.1 and the other electrodes.

*For X-ray shielding considerations, see sheet
X-RAY PRECAUTIONS FOR CATHODE-RAY TUBES
at front of this Section*

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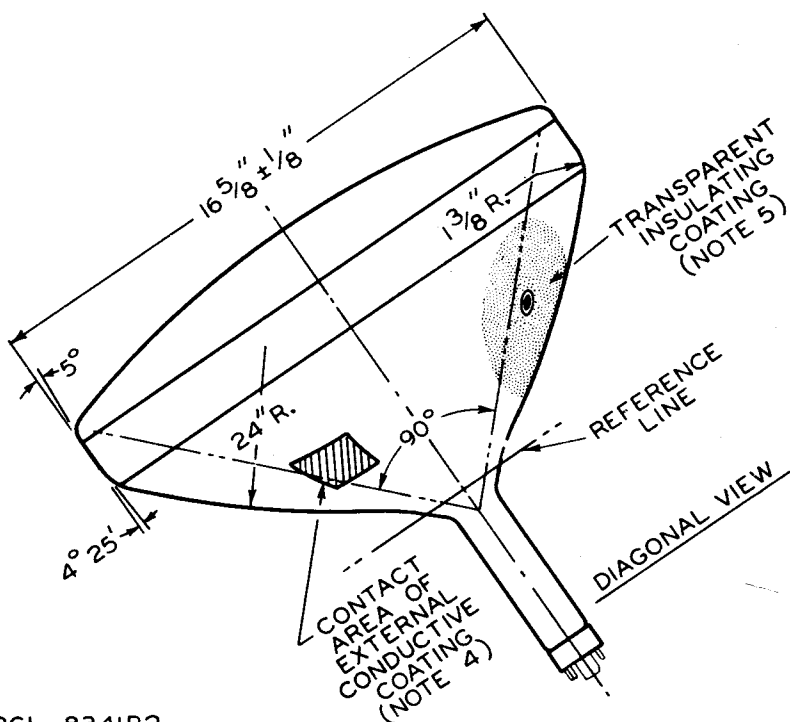
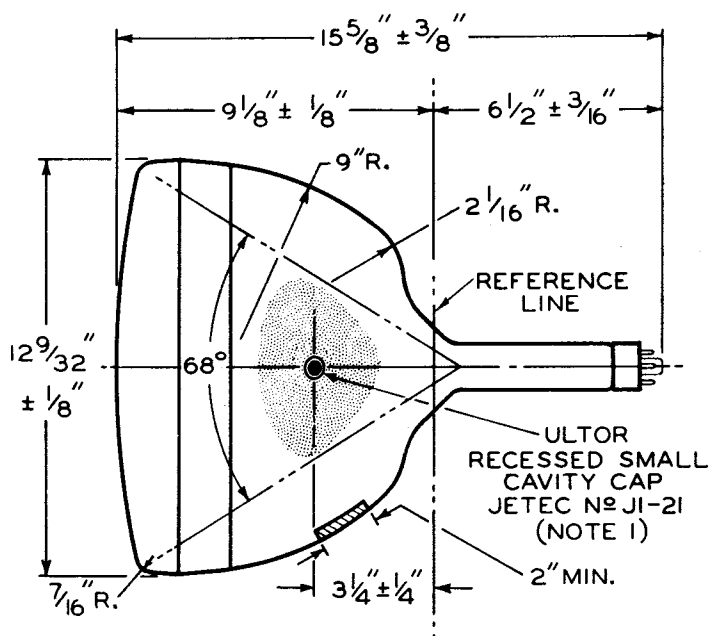


SMALL-SHELL DUODECAL
6-PIN BASE
JETEC GROUP 4, N^o B6-63
(NOTE 3)



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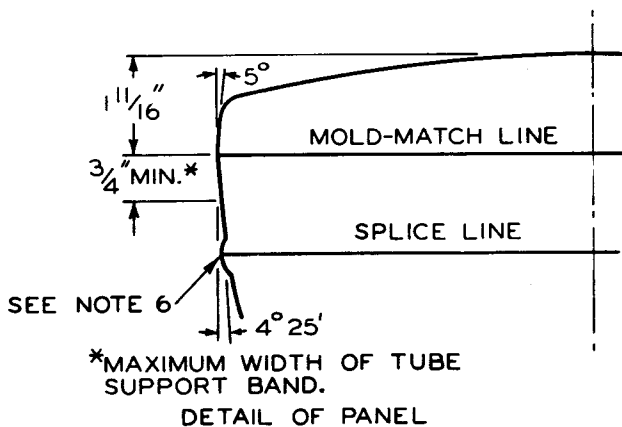
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92CL-8341R2



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NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN 6 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm 30^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS PIN 6.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JETEC No. G-116 (SHOWN AT FRONT OF THIS SECTION) AND WITH TUBE SEATED IN GAUGE, THE REFERENCE LINE IS DETERMINED BY THE INTERSECTION OF THE PLANE CC' OF THE GAUGE WITH THE GLASS FUNNEL.

NOTE 3: SOCKET FOR THIS BASE SHOULD NOT BE RIGIDLY MOUNTED; IT SHOULD HAVE FLEXIBLE LEADS AND BE ALLOWED TO MOVE FREELY. BOTTOM CIRCUMFERENCE OF BASE SHELL WILL FALL WITHIN A CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING A DIAMETER OF 2-3/4".

NOTE 4: THE DRAWING SHOWS THE MINIMUM SIZE AND LOCATION OF THE CONTACT AREA OF THE EXTERNAL CONDUCTIVE COATING. THE ACTUAL AREA OF THIS COATING WILL BE GREATER THAN THE CONTACT AREA SO AS TO PROVIDE THE REQUIRED CAPACITANCE. EXTERNAL CONDUCTIVE COATING MUST BE GROUNDING.

NOTE 5: TO CLEAN THIS AREA, WIPE ONLY WITH SOFT DRY LINT-LESS CLOTH.

NOTE 6: BULGE AT SPLICE-LINE SEAL MAY INCREASE THE INDICATED MAXIMUM VALUE FOR ENVELOPE WIDTH, DIAGONAL, AND HEIGHT BY NOT MORE THAN 1/8", BUT AT ANY POINT AROUND THE SEAL, THE BULGE WILL NOT PROTRUDE MORE THAN 1/16" BEYOND THE ENVELOPE SURFACE AT THE MOLD-MATCH LINE.



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AVERAGE DRIVE CHARACTERISTICS

CATHODE-DRIVE SERVICE

$E_f = 6.3$ VOLTS

ULTOR-TO-GRID- N_2 VOLTS=16000

CATHODE BIASED POSITIVE
WITH RESPECT TO GRID N_2
TO GIVE FOCUSED RASTER
CUTOFF.

RASTER FOCUSED AT AVERAGE
BRIGHTNESS.

RASTER SIZE=14" x 10 1/2"

GRID-DRIVE SERVICE

$E_f = 6.3$ VOLTS

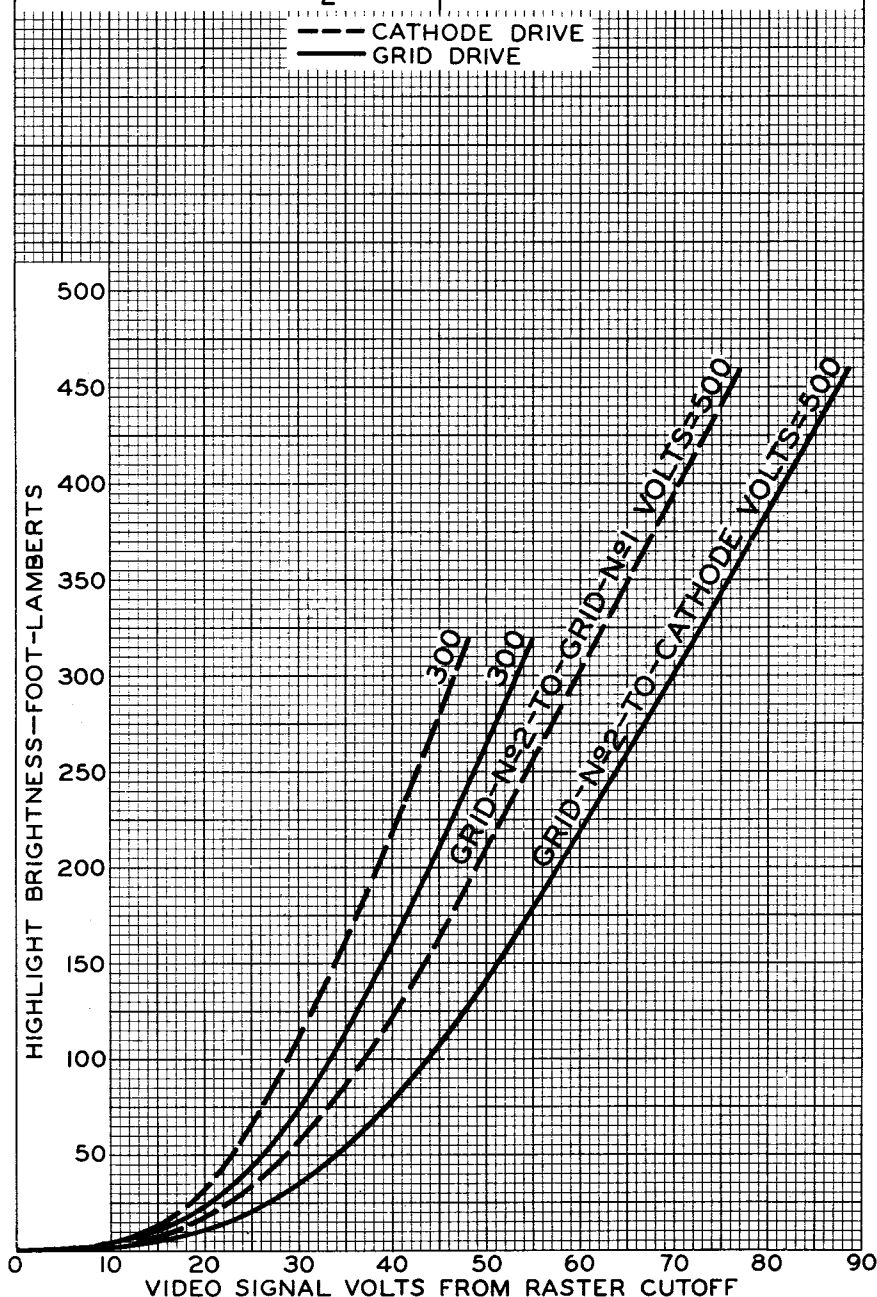
ULTOR VOLTS=16000

GRID N_2 BIASED NEGATIVE
WITH RESPECT TO CATHODE
TO GIVE FOCUSED RASTER
CUTOFF.

RASTER FOCUSED AT AVERAGE
BRIGHTNESS.

RASTER SIZE=14" x 10 1/2"

--- CATHODE DRIVE
— GRID DRIVE



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AVERAGE DRIVE CHARACTERISTICS

