

 <i>An SAE International Group</i>	AEROSPACE STANDARD	SAE AS20708/39	REV. B
		Issued 1999-07 Revised 2011-07	
		Superseding AS20708/39A	
Synchro, Control Transformer, Type 19CTB4B			
FSC 5990			

RATIONALE

This Revision consists of an update to the Figure 1, to correct over-printed notes in and identification of the Partial Section A – A view.

NOTICE

This specification is approved for use by all Departments and Agencies of the Department of Defense. The requirements for acquiring the Synchros described herein shall consist of this specification and the latest issue of SAE AS20708.

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1. SCOPE

This specification covers the detail requirements for control transformer synchro, type 19CTB4b, 90 volt, 400 cycle.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of the other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE International Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AS20708 Synchros, General Specification For

2.2 U. S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

COMMERCIAL ITEM DESCRIPTION

A-A-208 Ink, Marking, Stencil, Opaque (Porous and Non-porous Surfaces)

DEPARTMENT OF DEFENSE STANDARDS

MS90406 Gage, Ring, Spline (GO-NO GO)

DRAWINGS

BUREAU OF ORDNANCE (CAGE 10001)

643019 Clamp Assembly

643090 Washer, Drive

644594 Nut

LD 255268 Stock Material for Precision Instrument Components

(Copies of these documents required by contractors in connection with specific acquisition functions may be obtained from the procuring activity at DSCC.cddwgs@dla.mil, or as directed by the contracting officer.)

3. REQUIREMENTS

Qualification: Except when first article testing are required, synchros covered by this specification shall be a product which has been tested and qualified in accordance with Specification SAE AS20708.

First article sample: Pending issuance of a Qualified Products List (Q.P.L.), a sample of the synchros to be furnished under this specification shall be subjected to the first article tests as specified in SAE AS20708.

All requirements shall be in accordance with SAE AS20708 except as otherwise specified herein.

Salt spray requirement: Not applicable.

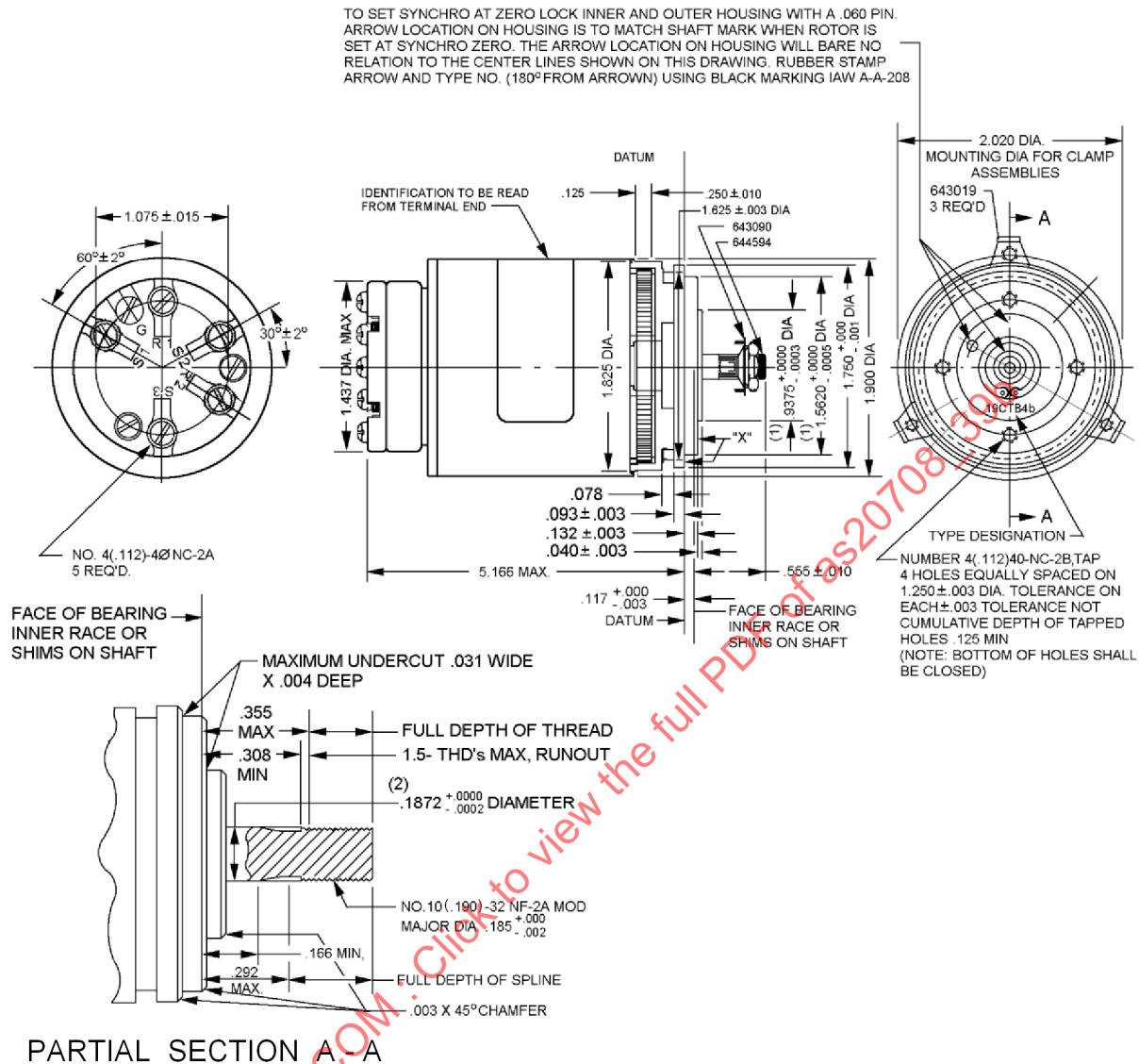
Design and construction: The synchro shall be of the design, construction, and physical dimensions specified in Figure 1, and shall be complete, including all hardware shown and identified thereon.

Performance requirements: The values applicable to the synchro shall be as specified in Table 1.

TABLE 1 - SYNCHRO, CONTROL TRANSFORMER, TYPE 19CTB4b

Requirement	Unit	Value
Frequency	Cycles	400
Primary voltage (nominal)	Volts	90
Primary current (maximum)	Milliamps	7.0
Primary power (maximum)	Watts	0.25
Transformation ratio $\pm 2\%$		0.735
Electrical error (maximum)	Minutes	8.0
Null voltage total (maximum)	Millivolts	65
Fundamental component of null voltage (maximum)	Millivolts	35
Friction torque (maximum)	Ounce-inches	0.1
Phase shift	Degrees	3.0 (lead)
Primary impedance (Z_p)	Ohms	<u>1/</u>
Secondary impedance (Z_s)	Ohms	<u>1/</u>

1/ As specified by the Bureau of Ordnance



DATA ELEMENT	SPLINE 1/	GEAR 2/
TEETH	21	120
PITCH	120	72
PITCH DIAMETER	0.175 +0.000 -0.002	1.6666 +0.0000 -0.0005
OUTSIDE DIAMETER	0.1872 +0.0000 -0.0005	1.6944 +0.0000 -0.0005
PRESSURE ANGLE	20 DEGREES	20 DEGREES
ROOT DIAMETER MAX.	0.155	1.6282
TOOTH FORM	FULL DEPTH INVOLUTE	FULL DEPTH INVOLUTE

1/ The end function of this spline is for positive rotational fastenings. It is not to be used as a gear. This spline shall be inspected using the Go-No Go spline ring gage MS90406.

2/ The Outer Diameter (O.D.) of this gear shall be concentric with respect to the 1.5620 diameter collar, within 0.0015. The shaft shall be locked to the outer housing and the shaft mark shall be in line with the outer housing arrow.

FIGURE 1 – SYNCHRO, CONTROL TRANSFORMER TYPE 19CTB4b