

Synchro, Torque Receiver Transmitter, Type 31TRX6A

FSC 5990

**RATIONALE**

This Revision consists of a 5 (five) year review, which provides updates to current format and references.

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 AS20708.

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TABLE 1 – REQUIREMENTS

| Requirement                                    | Value     | Unit                       | Tolerance |
|------------------------------------------------|-----------|----------------------------|-----------|
| Frequency                                      | 60        | Hz                         | ±1%       |
| Primary Voltage                                | 115       | volts                      | ±1%       |
| Primary Current                                | 440.0     | milliamps                  | maximum   |
| Primary Power                                  | 6.6       | watts                      | maximum   |
| Impedance:                                     |           |                            |           |
| Zss                                            | 24.0-33.0 | ohms                       | min.-max. |
| Impedance Angle:                               |           |                            |           |
| Zss                                            | 16.0-24.0 | degrees                    | min.-max. |
| Transformation Ratio                           | 0.783     | -----                      | ±2%       |
| Phase Shift (Lead)                             | 6.5       | degrees                    | maximum   |
| Electrical Error                               | 10.0      | minutes                    | maximum   |
| Receiver Error                                 | 36.0      | minutes                    | maximum   |
| Null Voltage:                                  |           |                            |           |
| Total                                          | 170.0     | millivolts                 | maximum   |
| Fundamental                                    | 35.0      | millivolts                 | maximum   |
| Synchronizing Time:                            |           |                            |           |
| 30° ±2°                                        | 1.0       | seconds                    | maximum   |
| Synchronizing Time:                            |           |                            |           |
| 177° ±2°                                       | 2.0       | seconds                    | maximum   |
| Torque Gradient                                | 0.40      | ounce-inches<br>per degree | minimum   |
| Radial Play                                    | 0.0008    | inches                     | maximum   |
| End Play                                       | 0.0030    | inches                     | ±0.0020   |
| Temperature Rise                               | 35.0      | degrees (C)                | maximum   |
| Variation of Voltage<br>(+10%) and Freq. (-5%) | 9.4       | watts                      | maximum   |

This unit shall not be subjected to the altitude requirements of SAE AS20708.

TABLE 2 – MILITARY PART NUMBER VARIANT CHARACTERISTICS

| Military Part No. <u>1</u> / | A<br>± .010 | B<br>± .010 | G<br>Maximum | Shaft<br>Style | Terminal<br>End | U<br>+ .0000<br>- .0002 |
|------------------------------|-------------|-------------|--------------|----------------|-----------------|-------------------------|
| M20708/66-01A                | .700        | .730        | 3.380        | Splined        | Terminal Board  | .2405                   |

1/ Military Part number M20708/66-01A shall be the NATO standard.

1/ The suffix letter following the numerical dash number corresponds to the latest modification letter in the type designation.