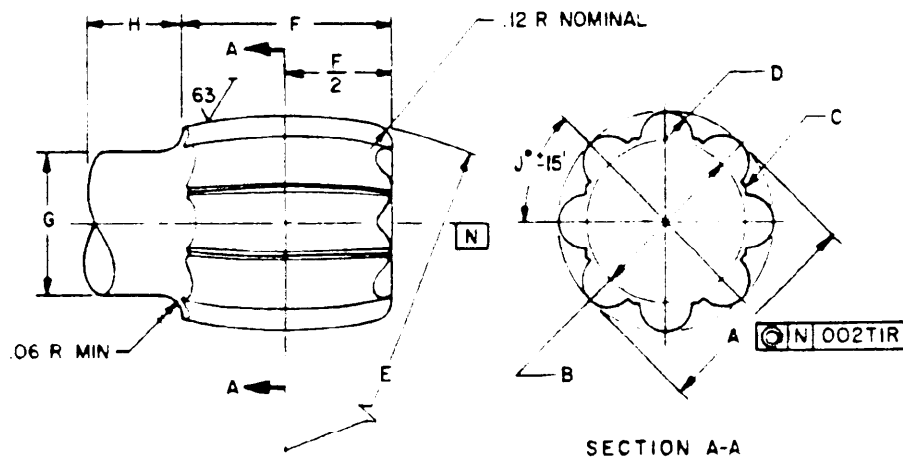


FED. SUP CLASS
6115METRIC CONVERSION

1.00 in. = 25.4 mm

CIRCULAR SPLINE
SPLINE DESIGN DATA

BASIC SIZE	NO. OF TEETH	SPLINE DIA A	FORM DIA E	ROOT DIA MAX C	TOOTH RADIUS D	CROWN RADIUS F	SPLINE LENGTH F	SHAFT DIA MAX G	SHAFT LENGTH MIN H	TOOTH INDEX ANGLE J
3/4	6	0.600 0.598	0.413 BASIC	0.470	0.093 0.091	10.0 8.0	0.85 0.65	0.438	0.31	60°
1	8	1.000 0.998	0.750 BASIC	0.600	0.124 0.122	15.0 13.0	1.10 0.90	0.670	0.44	45°
1 1/4	8	1.250 1.248	0.875 BASIC	1.000	0.155 0.153	16.0 14.0	1.35 1.15	0.910	0.44	45°

NAVY DESIGN STANDARD FOR CIRCULAR SPLINE COUPLINGS
USED IN AIRCRAFT ELECTROMECHANICAL ACCESSORIES.

(C) REVISED AND REDRAWN

This military standard is approved by NAVAL AIR SYSTEMS COMMAND, Department of the Navy and shall be used by that activity. All other military activities are required to employ this standard where suitable.

P.A. NAVY - AS
Other Cust

TITLE

CIRCULAR SPLINE & ADAPTER DETAILS
ENGINE DRIVEN ACCESSORIES

MILITARY STANDARD

MS14169 (AS)

PROCUREMENT SPECIFICATION

SUPERSEDES:

SHEET 1 OF 3

DD FORM 672-1 (limited coordination)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

Project No 61:5-N444

PLATE NO 23071

APPROVED 6 MAY 1976 REVISED (C) 31 JULY 1977 (C) 13 JUNE 1980

FED. SUP CLASS
6115

NOTES

1. **DIMENSIONS**
ALL LINEAR DIMENSIONS ARE IN INCHES EXCEPT ROUGHNESSES WHICH ARE IN MICROINCHES.
- (C) 2. **APPLICATION**
THE SPECIFIED ADAPTERS MAY BE USED ONLY WITH INVOLUTE SPLINES HAVING 30 DEGREES PRESSURE ANGLES.
3. **SPLINES**
MALL SHAFT SPLINES SHALL HAVE A MINIMUM SURFACE HARDNESS OF 3- ROCKWELL C TO A MINIMUM ANGLES.
4. **FINISH**
ALL BURRS AND SHARP EDGES SHALL BE REMOVED.
5. **APPLICATION**
CIRCULAR SPLINE COUPLINGS MAY BE USED AS REPLACEMENTS FOR WORN INVOLUTE SPLINE COUPLINGS WITHOUT MODIFICATION OF REPLACEMENT OF THE AIRCRAFT ACCESSORY DRIVE SHAFT (FEMALE SPLINE). PRIOR TO RETROFIT, THE FEMALE SPLINE SHALL BE THOROUGHLY CLEANED TO REMOVE SEDIMENT AND GREASE. THE DESIGN RESULTS IN AN INTERFERENCE FIT OF THE SPLINE ADAPTER INTO THE INVOLUTE SPLINE AND A SLIDING FIT OF THE CIRCULAR SPLINE SHAFT INTO THE ADAPTER.
- (C) 6. **INSTALLATION**
THE NONMETALLIC SPLINE ADAPTER IS DESIGNED TO BE INSTALLED IN THE DRIVE SHAFT FEMALE SPLINE PRIOR TO INSTALLING THE DRIVEN ACCESSORY. NONMETALLIC SPLINE ADAPTERS ARE INTENDED TO FIT TIGHTLY IN THE FEMALE SPLINE IN WHICH THEY ARE INSTALLED TO AVOID DAMAGING THE DRIVE SHAFT OF ACCESSORY SHAFT BEARINGS AND SEALS. THE SPLINE ADAPTERS SHOULD BE PRESSED INTO THE MATING SPLINES AND THE PRESSURE SHOULD BE REMOVED AS SOON AS THE SPLINE ADAPTER IS FULLY INSTALLED.
7. **RETENTION AND PRELOAD**
THE NONMETALLIC SPLINE ADAPTERS HAVE BEEN DESIGNED TO FIT TIGHTLY IN NEW FEMALE SPLINES. THE TIGHTNESS OF THE FIT WILL DIMINISH WHEN THE NONMETALLIC ADAPTER IS INSTALLED IN WORN OR USED FEMALE SPLINES. THE SPLINE ADAPTER HAS BEEN DESIGNED TO FIT TIGHTLY TO ACHIEVE A COMPRESSIVE PRELOAD WHICH EXTENDS THE OPERATING TORSIONAL RANGE OF THE NONMETALLIC SPLINE ADAPTER. THE TIGHT FIT ALSO PROVIDES A RESISTANCE TO AXIAL MOVEMENT WHICH AFFORDS SOME DEGREE OF RETENTION. HOWEVER, THE APPLICATION GENERALLY SHOULD REQUIRE SOME POSITIVE METHOD OF AXIAL RETENTION OF THE PART. POSITIVE RETENTION CAN BE ACHIEVED BY A VARIETY OF METHODS INCLUDING LENGTHENING THE NONMETALLIC ADAPTER, INCORPORATION OF FLANGES IN THE ADAPTER DESIGN, AND THE USE OF SNAP OR SPIRAL LOCK RINGS TO LIMIT THE AMOUNT OF AXIAL CLEARANCE.
8. **MATERIAL SELECTION**
THE PLASTIC SPLINE ADAPTER SHALL BE FABRICATED FROM HIGH STRENGTH, SELF-LUBRICATING POLYMERIC MATERIALS HAVING ULTIMATE COMPRESSIVE STRENGTHS OF A MINIMUM OF 25,000 PSI. TYPICAL MATERIALS INCLUDE THE POLYIMIDE, ARAMID AND POLYAMIDE-IMIDE RESINS, BELONGING TO THE DUPONT VESPEL AND AMOCO TORLON FAMILIES. THE PROCESS OF MATERIAL SELECTION SHOULD CONSIDER STRENGTH, FATIGUE AND AGING PROPERTIES, FLUID COMPATIBILITY, THERMAL EXPOSURE, DIMENSIONAL STABILITY, AND FORMING PROPERTIES.
9. **SHEAR SECTION**
THE SHAFT SHALL INCLUDE A SHEAR SECTION ALLOWING THE SHAFT TO SHEAR AT THE TORQUE SPECIFIED BY THE SPECIFICATION FOR THE ACCESSORY EQUIPMENT.
10. **PATENT RESTRICTION**
UNDER THE CONDITIONS OF PATENT NUMBER 3,626,043, "SPLINE-TYPE PIVOTS, UNIVERSAL JOINTS AND FLEXIBLE COUPLINGS," DATED NOVEMBER 16, 1971, ARKING RESEARCH CORPORATION HAS GRANTED TO THE UNITED STATES GOVERNMENT A ROYALTY-FREE LICENSE TO USE THE DESCRIBED CIRCULAR SPLINE COUPLING DESIGN FOR GOVERNMENTAL PURPOSES ONLY.

This military standard is approved by NAVAL AIR SYSTEMS COMMAND, Department of the Navy and shall be used by that activity. All other military activities are required to employ this standard where suitable.

P A NAVY - AS Other Cust	TITLE CIRCULAR SPLINE & ADAPTER DETAILS ENGINE DRIVEN ACCESSORIES	MILITARY STANDARD MS 14169 (AS)
PROCUREMENT SPECIFICATION	SUPERSEDES	SHEET 3 OF 3

DD FORM 1302-1 672-1 (limited circulation)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

PLATE NO. 23071

APPROVED 6 MAY 1976 REVISED (C) FOR CHANGES SEE SHEETS 1 THRU 3