REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVAL
A	The following areas were changed: signatures added, core saturation, operating frequency, IR, DWV, part marking	3/25/96	J. Bollman
B	Replace 7351 Mylar with 300-EL type Mylar and include K102 Kapton		
C	Replace 300-EL with 92-EL	10/24/96	J. Bollman
D	Completely redrawn with revisions per RN A-133	7/19/02	J. McCarron
E	Upper inductance limit increased and deltas changed in Table 3.1 per RN A-134	7/25/02	J. McCarron

SHEET REVISION STATUS

SH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REV	E	D	D	E	D															
SH	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
REV																				

Originator J. F. Plante/Unisys	DATE 3/8/96	FSC: 5950
Approved Q. Ghulamali/Unisys	3/15/96	Detail Specification For a Input Filter, 90 μH, 10V
Code 311 Approval J. Lohr/GSFC	3/15/96	
Code 311 Supervisory Apvl R. Chinnapongse/GSFC	3/18/96	
Additional approval O. Gonzalez/738.2/GSFC	3/22/96	S-311-320/7
D. Huff/738.1/GSFC	3/15/96	
A. Ruitberg/734.3/GSFC	3/19/96	

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20771
CAGE CODE: 25306

1. SCOPE

1.1 Scope. The complete requirements for procuring the input filter inductor described herein shall consist of this detail specification and the issue in effect of GSFC specification S-311-320. This specification slash sheet has been written for use by the XDS project.

1.2 Goddard Part Number. The inductors shall be identified by the following part number:

S311320A-	XDS/	0007	B
(Goddard Designator)	(XDS Project Identifier)	(Construction Code)	(Class B)

2. APPLICABLE DOCUMENTS

2.1 Applicable documents: The following documents, of the issue in effect on the date of invitation for bids, form a part of this specification to the extent specified herein.

Specifications

Federal

J-W-1177	Wire, Magnet, Electrical

NASA/GSFC

S-311-320A	General Specification for Simple Custom Electromagnetic Assemblies

NEMA

MW1000	Magnetic Wire

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements shall be as specified herein. Unless otherwise specified the general item requirements shall be in accordance with the GSFC Specification S-311-320A.

3.2 Design and Construction

3.2.1 Outline dimensions and terminal Connections. The device outline dimensions and terminal connections shall be as shown in Figure 1 and Table 1.

3.2.2 Weight. 4 grams, maximum

Table 1. Device Outline

Dimension	mm
A	15 (max)
B	1.5 (min)
C	8 (max)

Table 2 List of Materials

Material	Part Number	Manufacturer	Description	Procurement Specification
#26 AWG Magnet Wire	M1177/14-01C026	Phelps Dodge, Rea	Modified polyester with polyamideimide overcoat	JW1117/14B (2)
Core	2643002402 Material 43	Fair-Rite Products Corp.	Ferrite	N/A
Cleaning Solvent	Ethanol (1)	N/A	N/A	N/A
Insulation Tape	92-EL or K102	Dupont	Type A Mylar or Kapton	MIL-I-15126F

(1) A procedure shall be used to limit and control the use of ethanol for cleaning cores and wires

(2) Specification cancelled. See NEMA MW 1000 for new procurement part numbers.

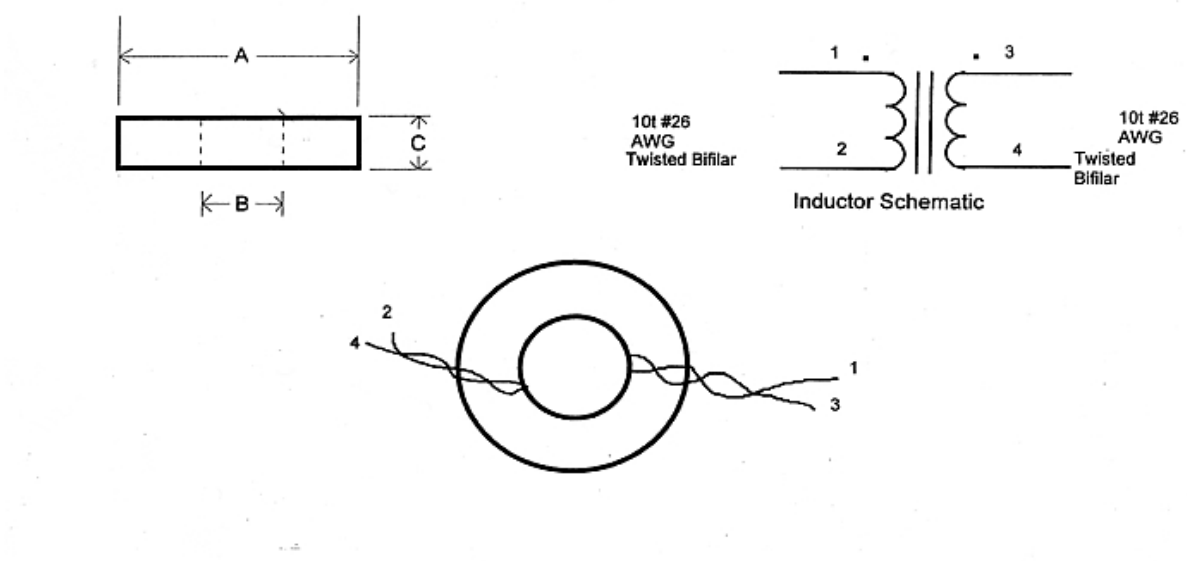

Figure 1. Input Filter Inductor

3.2.3 Terminals. Self lead, solderable
Length: 5.0 ±1.0 inches

3.2.4 Temperature.
Operating (ambient): -20°C to +60°C
Storage -40°C to +85°C

3.3 Materials of Construction. Materials shall conform to the requirements of GSFC S-311-320 specification and as specified in Table 2 herein.

3.4 Performance Characteristics and Requirements

3.4.1 Environmental Performance Requirements. The environmental performance requirements of the inductor shall be as specified in Table 3.0.

Table 3.0 Environmental Performance Requirements

Attribute	Data Value	Units
Maximum Primary Winding Voltage	10	Vpp
Maximum Secondary Winding Voltage	10	Vpp
Maximum Operating Frequency	500	KHz
Maximum Current	100	mAmps
Dielectric Withstanding Voltage (DWV)@ Atmospheric Pressure	250	Vrms
Insulation Resistance at +25°C	100	Mohms (min)
Operating Temperature Range (Ambient)	-20 to +60	°C
Storage Temperature Range	-40 to +85	°C
Temperature Rise (maximum)	+20	°C
Thermal Shock	-10 to +70	°C

3.4.2 Electrical Performance Requirements. The electrical performance requirements shall be as specified in Table 3.1.

Table 3.1 Electrical Performance Requirements Note 3

Wire Number		DC Winding Resistance (mOhms) Note 1		Winding Inductance (µHenrys) Note 2		Turns Ratio 100 mVpp sine @ 100 kHz
Start	End	min.	max.	min.	max.	
1	2	30	70	70	115	1:1
3	4	30	70	70	115	

Note 1 Delta allowed is ± 30% of the nominal rating.
Note 2 Delta allowed is ± 30% of the nominal rating @ 50kHz.
Note 3 Measurements in Table 3.1 to be taken with Wayne/Kerr Model 3240 Inductance Analyzer or equivalent.

3.4.3 Core Saturation. The core shall be capable of carrying a minimum of 115mA dc to minimize core saturation during differential operation.

3.5 Part marking. The part shall be fully identified on the part or package as applicable. The following information is required to maintain part identification and traceability: part number (see 1.2), serial number, terminal identification and lot date code.

3.6 Data Requirements. All screening test data shall be traceable to each inductor by serial number and lot date code. All d.c. resistance, inductance and insulation resistance measurements shall be read and recorded.

3.7 Radiographic Inspection. Applicable, reference Appendix A of S-311-320.

3.8 Wire Stripping. The use of mechanical stripping is preferred for magnet wire. If chemical stripping must be used, a procedure must be established as a minimum to control chemical overrun and the final cleanliness of the stripped wire.

4. PRODUCT ASSURANCE PROVISIONS

4.1 Qualification Inspection. Devices designed and manufactured in accordance with this specification shall be capable of meeting the qualification requirements of GSFC S-311-320 specification.

4.2 Quality Conformance Inspection. Quality conformance inspection shall be performed on 100% of the devices built to this specification and shall be in accordance with paragraph 4.5 of GSFC S-311-320. Lot acceptance shall be in accordance with the criteria given in paragraph 4.5.2 of S-311-320.

4.2.1 Burn-in. A twenty-four hour, non-operating bake is required. See Table IV of GSFC S-311-320.