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NASA KSC EXPORT CONTROL OFFICE - 321.867.6009

NOTES:

GENERAL

- 1A. REMOVE SCALE AND BURRS AND BREAK SHARP CORNERS AND EDGES.
- 1B. THE INNER SURFACES OF THE HOSE ASSEMBLY SHALL BE CLEANED IN ACCORDANCE WITH KSC-C-123, OR ASTM G 93, OR ISO 14952, OR CGA G-4.1, CLEAN LEVEL TO BE LEVEL 300A, CGA G-4.1 SHALL HAVE A PARTICULATE LEVEL OF 300 AS SPECIFIED IN KSC-123, TABLE 1, MAXIMUM NVR LEVEL OF 1.0 MG/0.1M². CLEANING IS FOR OXYGEN SERVICE.
- 1C. MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP): 100 PSIG, BURST PRESSURE: 400 PSIG OPERATING TEMPERATURE RANGE: -423 TO 158 F.
- 1D. THE MINIMUM CENTERLINE DYNAMIC BEND RADIUS SHALL BE NO GREATER THAN 21 INCHES. THE MINIMUM CENTERLINE STATIC BEND RADIUS SHALL BE NO GREATER THAN 11 INCHES.
- 1E. THE FLEXIBLE HOSE ASSEMBLY SHALL BE FABRICATED AND TESTED IN ACCORDANCE WITH ASME B31.3 PARAGRAPH 304.7.2 (C) OR (D). PARAGRAPH 304.7.2(E) SHALL NOT BE USED TO QUALIFY THE FLEXIBLE HOSE OR CONVOLUTE SECTIONS.

MATERIAL

- 2A. FLANGES SHALL BE PER ASME B16.5 WITH CONCENTRICALLY SERRATED RAISED FACES PER MSS-SP-6. MATERIAL SHALL BE PER ASTM A182 GRADE F316L.
- 2B. PIPE SHALL BE PER ASME B36.19M. MATERIAL SHALL BE SEAMLESS PER ASTM A312 GRADE TP316L.
- 2C. PIPE FITTINGS SHALL BE PER ASME B16.9. MATERIAL SHALL BE PER ASTM A403 GRADE WP316L CLASS S OR WX.
- 2D. FLEXIBLE HOSE SHALL BE CLOSE PITCH ANNULAR CONVOLUTIONS. MATERIAL SHALL BE PER ASTM A240 GRADE 316L.
- 2E. BRAID MATERIAL SHALL BE PER ASTM A580 GRADE 316L.
- 2F. REMAINING MATERIALS SHALL BE 316L STAINLESS STEEL AND SHALL MEET THE REQUIREMENTS OF ASME B31.3.

WELDING

- 3A. ALL WELDS SHALL BE PER AWS D17.1, CLAUSE (SECTION) 9, PARAGRAPH 9.1, OPTION 2, AND ASME B31.3 INSPECTION SHALL BE PER AWS D17.1, CLAUSE (SECTION) 9, PARAGRAPH 9.2.4, SEVERE CYCLIC CONDITIONS.
- 3B. ALL WELDS SHALL MEET THE REQUIREMENTS FOR LOW TEMPERATURE TOUGHNESS (IMPACT TEST) IN ACCORDANCE WITH ASME B31.3, PARA. 323.2.2 TO -423 DEGREES FAHRENHEIT.
- 3C. PIPE TO FLEXIBLE HOSE TRANSITION AND WELDS SHALL BE PER THE FABRICATOR'S STANDARD PRACTICE.
- 3D. WELDS AND HEAT AFFECTED AREAS SHALL BE PASSIVATED PER ASTM A967.

TESTING

- 4A. TESTING SHALL BE CONDUCTED IN ORDER SHOWN BELOW.
- 4B. THE ASSEMBLY SHALL BE COLD SHOCKED WITH LN2 BY FILLING OR SUBMERSION ALLOWING ASSEMBLY TO COLD-SOAK FOR 1 HOUR.
- 4C. THE ASSEMBLY SHALL BE HYDROSTATICALLY TESTED USING FILTERED WATER AT A MINIMUM OF 150% OF THE DESIGN PRESSURE AT COINCIDENT TEMPERATURE IN ACCORDANCE WITH ASME B31.3. THE CONTRACTOR SHALL SUBMIT PROPER DOCUMENTATION OF ALL HYDROSTATIC TESTING.
- 4D. THE ASSEMBLY SHALL BE LEAK TESTED USING A HELIUM MASS SPECTROMETER LEAK DETECTOR (HMSLD). LEAKAGE NOT TO EXCEED 10E-5 STD-CC/SEC AND SENSITIVE TO 10E-6 STD-CC/SEC.

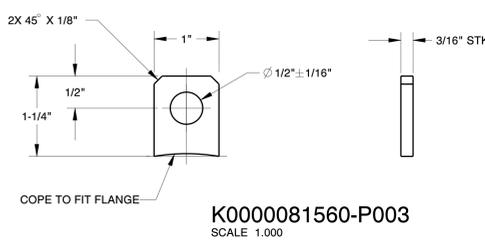
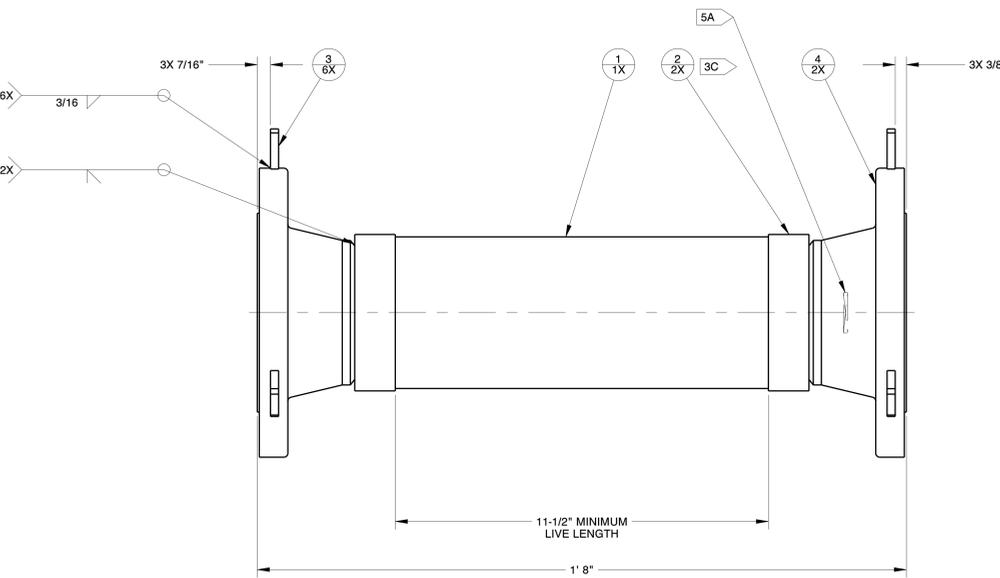
MARKING

- 5A. ELECTROCHEMICAL ETCH (TYPE II), ENGRAVE (TYPE VII), OR LASER ENGRAVE (TYPE VIII) PART NUMBER K0000081560, USING .125 INCH MINIMUM CHARACTERS PER PROVISIONS IN MIL-STD-792 AND THE GENERAL REQUIREMENTS (PARAGRAPH 3.1) AND QUALITY ASSURANCE PROVISIONS (PARAGRAPH 4) OF KSC-STD-E-0015. AT A MINIMUM, THE FOLLOWING INFORMATION SHALL BE INCLUDED:
 MANUFACTURERS NAME
 CONTRACT NUMBER
 SERIAL NUMBER
 DESIGN PRESSURE
 TEST PRESSURE
 TEST DATE
 SERVICE
 YEAR BUILT
 TEMPERATURE RANGE
 WEIGHT

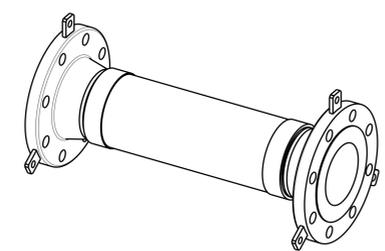
ASSEMBLY

- 6A. FLEX HOSE SHALL BE DELIVERED CAPED USING PARTS LISTED IN TABLE I BELOW. SEALING SURFACE PARTS SHALL BE CLEANED PER NOTE 1B.
- 6B. LUBRICATE TUBE FITTING THREADS PER KSC-SPEC-Z-0009 WITH KRYTOX 240AC, BRAYCOTE 601, BRAYCOTE 815Z OR KSC DESIGN ENGINEERING APPROVED EQUAL FROM OPL-26717.
- 6C. 76K04886 PER ASME B16.21 NONMETALLIC GASKETS SHALL ONLY BE USED TO SEAL THE BLIND FLANGES FOR STORAGE AND TRANSPORT.
- 6D. FLANGE TORQUE VALUES SHALL BE 90 +/- 9 FT-LBS.

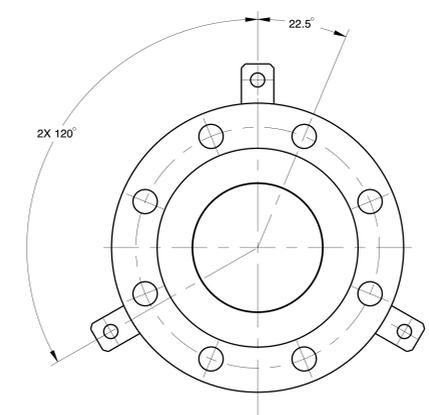
TABLE I SHIPPING PARTS LIST		
QTY	PART NUMBER	DESCRIPTION
32	AEW26X62N000SE4A11	WASHER, TYPE B, NARROW, 5/8, STAINLESS STEEL
2	KT00380-150FL04D000	GASKET, CLASS 150, ASME B16.21
2	KT00114-150SS04D00	FLANGE, BLIND, B16.5, CLASS 150
32	76K04876-10	NUT, HEX
16	76K04875-1017-10	0.625X4.25 STUD ASTM A320



K0000081560-P003
SCALE 1.000



ISOMETRIC
SCALE .250



QTY	ZONE	TRD NO OR ITEM NO	MFR CODE	PART OR STOCK NO	DESCRIPTION
2	4	22264		KT00120-150SS04D00	FLANGE, WELD NECK, B16.5, CLASS 150
6	3	22264		K0000081560-P003	PLATE
2	2	22264		K0000081560-P002	PIPE TO HOSE TRANSITION, 4 INCH
1	1	22264		K0000081560-P001	FLEXIBLE HOSE, 4 INCH

PARTS LIST

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. SOFTWARE: CREO PARAMETRIC 2.0 PROJECT: K0000081560D MATERIAL: NONE NOTED: NONE FINISH/TREATMENT: NONE FINISH/PROTECTIVE FINISH: NONE	UNLESS OTHERWISE SPECIFIED DIM ARE IN INCHES. INTERPRET DIM AND TOL PER ASME Y14.5-2009. TOLERANCES ON: DIMENSIONS: 1 PL. ± .1 ANGLES: 2 PL. ± .03 3 PL. ± .010	ORIGINAL DATE OF DRAWING: 2014/03/13 DESIGNED BY: S. A. BRYANT CHECKED BY: J. A. STAGI ENGINEER: J. R. WILLIAMS DRAFTER: D. A. REWINKEL DESIGNED BY: J. J. BEAHN SUBMITTED BY: J. G. GADDONE APPROVED BY: E. A. THAXTON	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA FLEX HOSE, NPS 4 SIZE: E CASE CODE: 22264 DWS NO: K0000081560 SCALE: .500 NET WEIGHT: 36.25 SHEET: 1 OF 1
		THIRD ANGLE PROJECTION 	APPLICATION

K0000081560D (FLEX HOSE, NPS 4)

Document Number: K0000081560D

Version: -

Name: FLEX HOSE, NPS 4

Type: Drawing

Container: Deployable Launch System (DLS)

State: Released

Modified By: Daniel Stanifer

Modified On: Tue, Jun 16, 2015 10:44:59 EDT

Change Requests: K-CR-24465, K-CR-24465

Affected PMNs:

Maturity History

Version	State	Promoted By	Promoted On
-.21	Released	wcadmin-(Site)	Wed, Jul 1, 2015 16:55:42 EDT
-.21	Completed	Daniel Stanifer	Wed, Jun 17, 2015 15:07:45 EDT
-.21	Under Review	wcadmin-(Site)	Tue, Jun 16, 2015 10:52:38 EDT
-.19	In Work	wcadmin-(Site)	Tue, Jun 16, 2015 09:33:39 EDT
-.19	Under Review	wcadmin-(Site)	Thu, Jun 11, 2015 13:31:25 EDT
-.1	In Work	gigo	Thu, Mar 13, 2014 22:25:35 EDT

KDDMS Routing History

CN/CT Number	Task	Assignee	Role	Events	Comment	Started	Completed
K-CT-23351	[KDDMS] - Complete Signature Required Assignment	Brett Lannie	Assignee		routed for procurement release	Fri, Jun 19, 2015 19:17:14 EDT	Wed, Jul 1, 2015 14:16:37 EDT
K-CT-23351	[KDDMS] - SIGNATURE Required for Release	Michael Johnson	Signatory	Approve		Wed, Jul 1, 2015 14:16:37 EDT	Wed, Jul 1, 2015 14:50:04 EDT
K-CT-23351	[KDDMS] - SIGNATURE Required for Release	Roger Mathews	Signatory	Approve	Signing for Division Chief	Wed, Jul 1, 2015 14:16:37 EDT	Wed, Jul 1, 2015 14:45:38 EDT
K-CT-23503	[KDDMS] - Complete Signature Required Assignment	Brett Lannie	Assignee		routed for signature approval per KDP-P-2718	Thu, Jun 25, 2015 16:11:04 EDT	Thu, Jun 25, 2015 16:28:57 EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	Daniel Stanifer	Signatory	Approve		Thu, Jun 25, 2015 16:28:58 EDT	Tue, Jun 30, 2015 09:15:16 EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	Steven Shelley	Signatory	Approve	This approval vote is a replacement for Stress engineer Larry Kaylor, who is no longer on this contract.	Thu, Jun 25, 2015 16:28:58 EDT	Mon, Jun 29, 2015 08:49:35 EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	Jeffrey R. Williams	Signatory	Approve		Thu, Jun 25, 2015 16:28:58 EDT	Mon, Jun 29, 2015 08:22:38 EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	Stuart Bryant	Signatory	Approve		Thu, Jun 25, 2015 16:28:58 EDT	Mon, Jun 29, 2015 06:01:00 EDT
K-CT-	[KDDMS] - SIGNATURE	Eric	Signatory	Approve		Thu, Jun 25, 2015 16:28:58	Fri, Jun 26, 2015 12:07:15

23503	Required for Release	Thaxton				EDT	EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	Douglas Rewinkel	Signatory	Approve		Thu, Jun 25, 2015 16:28:58 EDT	Fri, Jun 26, 2015 11:24:07 EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	Craig Fortier	Signatory	Approve		Thu, Jun 25, 2015 16:28:58 EDT	Fri, Jun 26, 2015 09:00:18 EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	Joseph Gaddone	Signatory	Approve		Thu, Jun 25, 2015 16:28:58 EDT	Fri, Jun 26, 2015 08:11:04 EDT
K-CT-23503	[KDDMS] - SIGNATURE Required for Release	James Beahn	Signatory	Approve		Thu, Jun 25, 2015 16:28:58 EDT	Thu, Jun 25, 2015 16:38:40 EDT
P-CN-23549	KSC Procurement Release Audit Change Notice	Nicholas Delgado	Change Admin III	Complete	Procurement Released per KDP-P-2718	Wed, Jul 1, 2015 14:50:19 EDT	Wed, Jul 1, 2015 16:55:42 EDT
P-CN-23549	KSC Procurement Release Audit Change Notice	Nicholas Delgado	Change Admin III	Complete	Procurement Released per KDP-P-2718	Wed, Jul 1, 2015 14:50:19 EDT	Wed, Jul 1, 2015 16:55:42 EDT