

SUT00011814

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My brand
261

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		INITIAL	DATE		1. APPROVAL	3. INFORMATION	5. SIGNATURE
			MO.	DAY	YR.	2. COMMENT	4. PREPARE REPLY
345C		<i>Jo</i>	1	25	57	24 JAN 1957	
532C		<i>Remi</i>	1	29	57	<i>Mr. Wenger - Citea copies attached for your attention.</i>	
532F		<i>Don</i>	1	30	57		<i>forville 345C X 66084</i>
532		<i>PG</i>	1	30	57		
						31 JAN 1957	
345C		<i>gHC</i>	1	31	57	<i>Attn Durinche -</i> <i>Cy of info returned. Per our conversation this AM request EES to request to expedite tests of "V" rings made with type II material Spec MIL-L-17314B (slang), Valve stem packing 2.666 style 5861 (titanium impregnated) and 5/16 style 447 "V" rings. Also request expedited especially valve stem packing info for CVA60.</i>	

SIGNATURE, EXTN., AND CODE ARE TO FOLLOW COMMENTS

FILE - Unless this material is to be further routed, return to file by dating and initialing below.

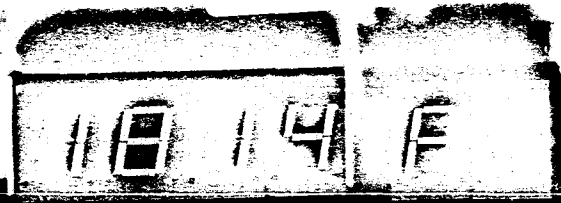
INITIAL *gHC* DATE *1/31/57*

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FILE NO. _____ SERIAL NO. **1231405-57**

CRMC-M&S-003944

SUT0001



SUT00011815

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NAVAL SPEEDLETTER

File No. NP/15/J10(712B) Test 010276A

Serial No.

Date 22 JAN 1957

SPEEDLETTER

TO: Chief, Bureau of Ships (Code 345C)

Use in lieu of despatches, telegrams, teletype and mailgrams when appropriate.

Do not handle through Communication Offices.

Despatch phraseology may be used.

Use size No. 9 window envelopes when appropriate and available.

If used for classified matter handle as prescribed in U. S. Navy Regs. Arts. 75 1/2 and 76.

Upon receipt EXPEDITE HANDLING and DELIVERY as much as possible.

Subj: Investigation of packings and gaskets for use in hydraulic systems employing phosphate-ester fluids; NS 066-001; Test 010276A

Ref: (a) BUSHIPS ltr All/NS 066-001(345C) ser 345C-164(64876) of 16 Aug 1955
(b) BUSHIPS spdltr All/NS 066-001(345C) ser 345C-6 of 8 Jan 1957
(c) Military Specification MIL-P-2911 para. F-3a

By reference (a) the Station was requested to conduct the subject investigation. In compliance with reference (b), this is a progress report covering immersion tests of sheet materials and practical tests of hydraulic-ram packings.

The physical properties of the sheet materials were determined initially and after immersion for one week in Cellulube 220 phosphate-ester hydraulic fluid at 156°F. The ram packings were subjected to simulated-service test in the Station's telemotor-ram packing-test apparatus. This test was conducted as described in reference (c), except that the fluid temperature was 150°F. The results are tabulated below.

345C

1271405-57

A11/NS066-001

W. W. BROWN

Copies to

Signature and Title

A. E. LUNDGREN

By direction

SENDER'S MAILING ADDRESS (Including identity of originating office.)

DIRECTOR

ENGINEERING EXPERIMENT STATION

ANNAPOLIS, MARYLAND

ATTENTION ADDRESSEE: Address reply exactly as indicated on right. **NSP**

CRMC-M&S-003945

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Material	Spec. or Symbol	Manufacturer and Brand	Initial		% Change After Immersion		
			Tensile Strength, psi	Hardness Durometer A	Volume	Tensile Strength, psi	Hardness
Plant Fiber Sheet	2290	Garlock 681	4,560	91	-9.0	+120	0
Asbestos-metallic cloth	2151	Garlock 7807	1,320	68	+50.0	Not run (1)	-88
Hypac-cork	MIL-Q-6183 Class I; soft	Wolverine Fab. and Mfg. Co. MS-150B	305	62	+52.5	-47	-33
Buna N-fiber	-	Wolverine Lofock MS-185	4,300	100+	+45.0	-44	-10
Neoprene-cork	MIL-Q-6183 Class II; med.	Wolverine MS-170-B	259	60	+47.0	-49	-33
Neoprene-cork	MIL-Q-6183 Class II; med.	Armstrong Cork DC100	311	65	+52.0	-52	-33
Compressed Asbestos	-	Anchor Packing 450	3,200	100+	+32.0	-39	-4
Compressed Asbestos	2150	Colt Mfg. Co. 1701B	3,100	100+	+13.5	-39	-1
Cork	HH-C-576	Navy Stock	168	64	+3.3(2)	-22	-30
Conical hydraulic neoprene binder	-	John-Mansville Conopac #44	N.A.	98	+10.0	N.A.	0
Conical hydraulic neoprene binder	-	Garlock Style 8321	N.A.	98	+47.0	N.A.	-22
Conical hydraulic butyl binder	-	Garlock Style 7514	N.A.	99	+2.2	N.A.	-5
V hydraulic neoprene binder	1220	Garlock Style 431	N.A.	95	+40.2	N.A.	-20
V hydraulic neoprene binder	1220	U. S. Rubber "Matchless"	N.A.	98	+37.2	N.A.	-20
Butyl sheet	-	Garlock 9188	1,175	90	+2.4	+127	-5
Vyram sheet	-	Garlock 9527	906	80	+2.5	+140	-5
Butyl-cork	-	Armstrong YC-900	145	52	+4.0	+215	0
Buna N-cork	MIL-Q-6183 Class I; firm	Armstrong NC-711	-	80	+25.0	-	-20

(1) Material too deteriorated for tensile determination.

(2) Material absorbed 70% fluid by weight.

NA - Not applicable.

Ram Simulated Service Test

<u>Material</u>	<u>Mfr. and Style</u>	<u>Hours of Test</u>	<u>Results</u>
Conical with neoprene binder	Garlock 8321	176	Excessive leakage due to extensive deterioration
Conical with butyl binder	Garlock 7514	950	Satisfactory - test continuing
V with butyl binder	Garlock 8220	56	Insufficient rigidity of construction to retain shape under high service pressures
Conical with neoprene binder	John-Manville Conepac 44	124	Swelled and caused excessive friction

The results show that the packings with conventional synthetic-rubber binders are not resistant to Cellulube 220. With few exceptions, these materials swelled excessively, softened and lost strength. Only the butyl or vyram materials are resistant to Cellulube 220. The latter materials also were found to have almost the same resistance to a mixture of Cellulube 220 with 4% by volume of petroleum-base fluid such as might result from incomplete drainage of the system during conversion to the phosphate-ester fluid.

Results of the simulated-service test show that conical or V-type hydraulic packings with neoprene binder are unsuitable for use with the phosphate-ester fluid. Only the conical packing with butyl binder, Garlock 7514, is indicated to be suitable by its 950 hours of satisfactory performance to date.

The investigation will continue with tests of additional ram packings and practical flange-joint tests of gasket materials.

A. E. Lundgren

