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LAND SEA AIR SPACE

TECHNICAL REPORT J1402a

AIR BRAKE HOSE—SAE J1402a

SAE Standard

Report of Motorcoach and Motor Truck Division approved January 1942 and last revised by Nonmetallic Materials Committee July 1969.
This material was formerly designated SAE 40R2.

[The specifications in this SAE Standard originated in the SAE-ASTM Technical Committee on Automotive Rubber (other than tires). They represent the correlation of the best information available from research investigation and production experience on the minimum constructional and performance characteristics essential for new brake-hose assemblies used as original or replacement equipment. They also represent the minimum quality recognized by car manufacturers and hose suppliers as essential for satisfactory and safe operation by the hose itself and other coacting parts of the braking system.]

Scope—This specification covers six types of air hose intended for use in automotive air brake systems. The system includes all air actuated equipment leading from the air brake line. These types of hose are not to be used from the air compressor to air reservoir if air temperature is in excess of 250 F. The types of hose are as follows:

Type A—Hose shall be mandrel built having a tube and friction of oil resisting rubber, reinforced with cotton or synthetic cord or duck plies or a combination of both, and a cover of oil resisting compounds utilizing polymerized chloroprene as the basic material. Assemble with reusable or permanent type metal end fittings.

Type B—Hose shall be nonmandrel built having a tube and friction of oil resisting rubber, reinforced with cotton or synthetic cord or duck plies or a combination of both, and a cover of oil resisting compounds utilizing polymerized chloroprene as the basic material. Assemble with reusable or permanent type metal end fittings.

Type C—Hose shall be mandrel built having a tube of oil resisting rubber, reinforced with one braid of high tensile steel wire and a cover of oil resisting compounds utilizing polymerized chloroprene as the basic material. A cotton braid or other suitable material may be used to anchor the cover to the hose. Assemble with permanent type metal end fittings only.

Type D—Hose shall be mandrel built having a tube of oil resisting rubber, reinforced by two cotton or synthetic braids separated by a wire braid. All braids are to be impregnated with an oil and age resisting compound. The wire braid may be of high tensile carbon steel or of series 300 stainless steel. Hose may also have an optional thin cover of oil resisting compound utilizing polymerized chloroprene as the basic material. Assemble with reusable or permanent type metal end fittings.

Class I—The wire braid shall be of high tensile carbon steel.

Class II—The wire braid shall be of 300 series stainless steel.

Type E—Hose shall be mandrel built having a tube of oil resisting rubber, reinforced with two cotton or synthetic braids separated by a wire braid. All braids are to be impregnated with an oil and age resisting compound. This hose is not to be used on any line where abrasion of the outer cover will be encountered in its service. Assemble with reusable type metal end fittings only.

Type F—Hose shall be mandrel built having a tube of oil resisting rubber, reinforced with one 300 Series stainless steel braid and one fabric braid separated by an insulation layer of oil resisting rubber. The fabric braid is to be impregnated with an oil and age resistant compound. Assembled with reusable or permanent type metal end fittings.

Manufacture—The construction of hose for this service embodies a smooth bore tube of oil resisting material reinforced as described for the types of hose and having a cover of abrasive oil and age resistant compound, except on Types D, E, and F where the cover will be an impregnated cotton cover. The hose shall be so manufactured as to comply with the test requirements set forth in this SAE Standard.

Reusable End Fittings—Reusable end fittings shall consist of a nipple inserted into the bore of the hose and an outer sleeve (socket, body, or shell) engaging the nipple. The wall of the hose shall be compressed between the nipple and sleeve. Reusable end fittings on Types A and B shall be of such design and construction that they may be used on all constructions of both types of hose.

Dichromate Dip—All zinc plated end fittings are to be dichromate dipped.

Salt Spray Test—Hose assembly end connections shall withstand 24 hr exposure to salt spray when tested in accordance with ASTM B 117 Method of Salt Spray (Fog) Testing. Conformance to this requirement shall be determined by observation of the exterior of the fitting.

Hose Identification—The type of hose, the name or trademark of the hose manufacturer, and/or the hose assembler or coupling manufacturer shall appear on the outer cover of the hose at intervals not greater than 15 in. apart. The color of the branding shall be red for all types. In addition, hose reinforced with series 300 stainless steel shall have one plait in the cover braid colored white or yellow, the rest of the cover being black.

Retests and Rejections—Any hose which fails in one or more tests may be resampled and retested for which purpose two additional samples shall be selected from the hose for the test that failed to meet the requirements. Failure of either of the retested samples shall be cause for final rejection.

Sizes—The hose shall conform to the dimensional requirements given in Table 1.

TABLE 1—AIR BRAKE HOSE DIAMETER

Size, in.	Inside Diameter Tolerance, in.				Types A and B OD, in.		Type C OD, in.		Type D OD, in.		Type E OD, in.		Type F OD, in.	
	Type A	Type B	Type C	Types D, E and F	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
3/16[a]	±0.016	±0.023	—	+0.026 +0.000	0.500	0.562	—	—	0.500	0.539	0.472	0.510	0.468	0.507
1/4	±0.016	±0.023	+0.023 −0.008	+0.031 −0.000	0.594	0.656	0.594	0.656	0.562	0.602	0.535	0.573	—	—
5/16	±0.016	±0.023	—	+0.031 −0.000	0.656	0.719	—	—	0.656	0.695	0.598	0.636	0.593	0.632
3/8	±0.016	±0.023	+0.023 −0.008	—	0.719	0.781	0.750	0.812	—	—	—	—	—	—
13/32	±0.016	—	—	+0.031 −0.000	—	—	—	—	0.742	0.789	0.714	0.760	0.742	0.788
7/16	±0.016	±0.031	—	—	0.781	0.844	—	—	—	—	—	—	—	—
1/2	±0.016	±0.031	+0.031 −0.015	+0.039 −0.000	0.844	0.906	0.875	0.937	0.898	0.945	0.808	0.854	0.837	0.883
5/8	±0.016	±0.031	—	+0.042 −0.000	1.031	1.094	—	—	1.054	1.101	0.933	0.979	0.953	1.015
5/8 Special	±0.016	±0.031	—	—	1.344	1.406	—	—	—	—	—	—	—	—

[a] 3/16 in. size Types A and B may be single-ply reinforcement.