



SURFACE VEHICLE RECOMMENDED PRACTICE

J318™

JUN2021

Issued 1967-11
Stabilized 2019-11
Revised 2021-06

Superseding J318 NOV2019

Automotive Air Brake Line Couplers (Gladhands)

RATIONALE

This technical report has been revised to include the option of performing corrosion testing using the alternate approach detailed in the comprehensive SAE J2721 Recommended Practice. Other minor corrections and clarifications have been made as identified.

1. SCOPE

This SAE Recommended Practice is intended to provide design, interchangeable dimensions, testing procedures, performance requirements, and minimum identification for gladhand-type air line couplers used to connect the brake systems of trucks, truck-tractors, trailers, and dollies when these vehicles are joined to operate as a combination unit.

1.1 Purpose

The purpose is to provide coupler halves for brake lines on one vehicle that will be identified and compatible with the coupler halves on the brake lines of another vehicle.

2. REFERENCES

2.1 Applicable Documents

The following publication forms a part of the specification to the extent specified herein. Unless otherwise specified, the latest issue of SAE publications shall apply.

2.1.1 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B117 Standard Method of Salt Spray (Fog) Testing

3. DESIGN AND INTERCHANGEABILITY DIMENSIONS

3.1 Design is limited only to those areas having dimensions that ensure interchangeability. Any material may be used, providing that the coupler meets the performance requirements. Other devices may be included in the gladhand, such as a quick-release valve or shut-off valve. Recommended practices for these devices are not included in this document.

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2020 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
<http://www.sae.org>

SAE WEB ADDRESS:

For more information on this standard, visit
https://www.sae.org/standards/content/J318_202106

3.2 General design and interchangeability dimensions are shown for polarized and non-polarized couplers as follows in Figures 1 to 3.

Use of non-polarized couplings is not recommended because they will mate with either polarized couplings which could result in incorrect connections between vehicles.

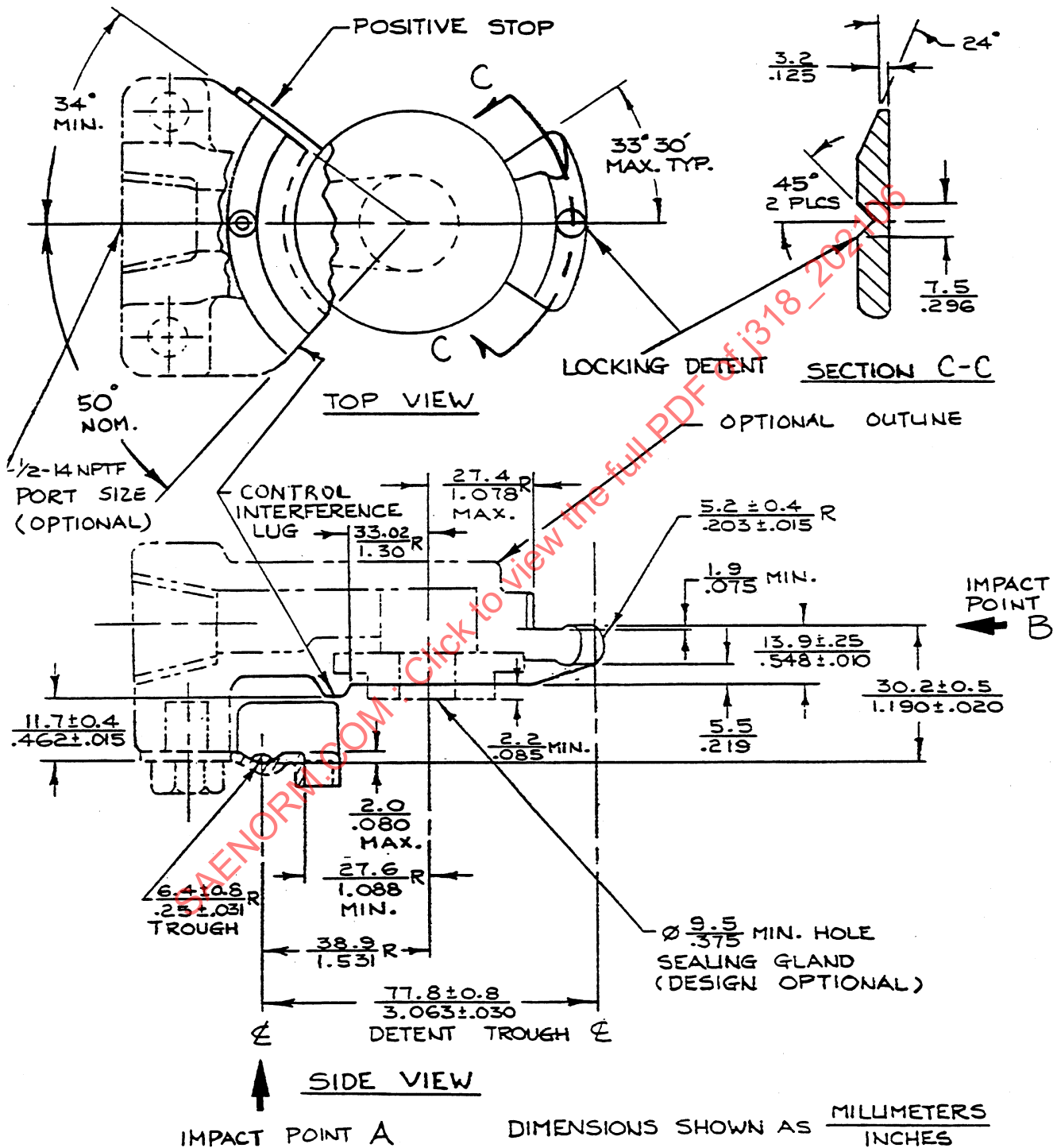


Figure 1 - Control (service) air brake coupler

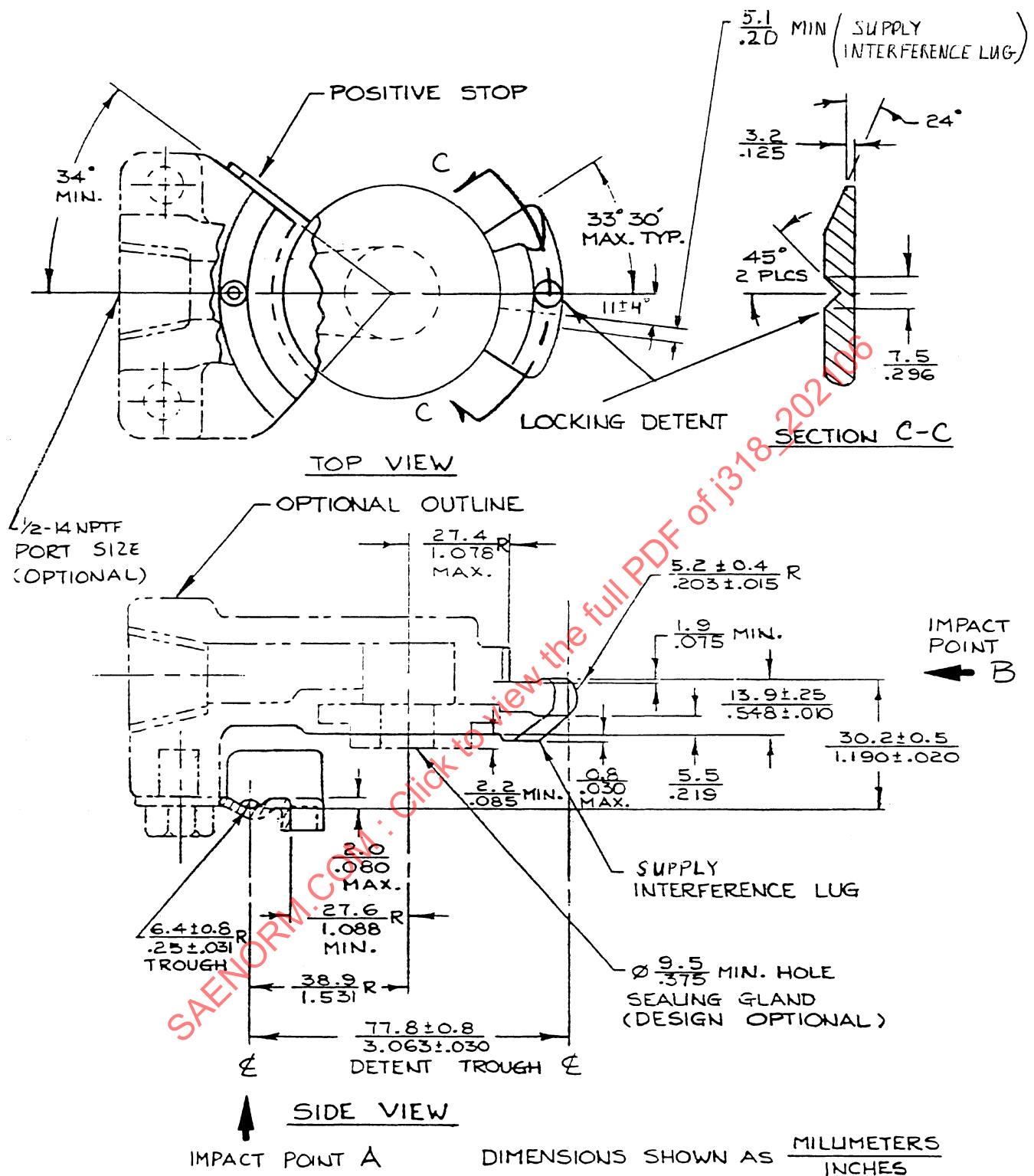


Figure 2 - Supply (emergency) air brake coupler

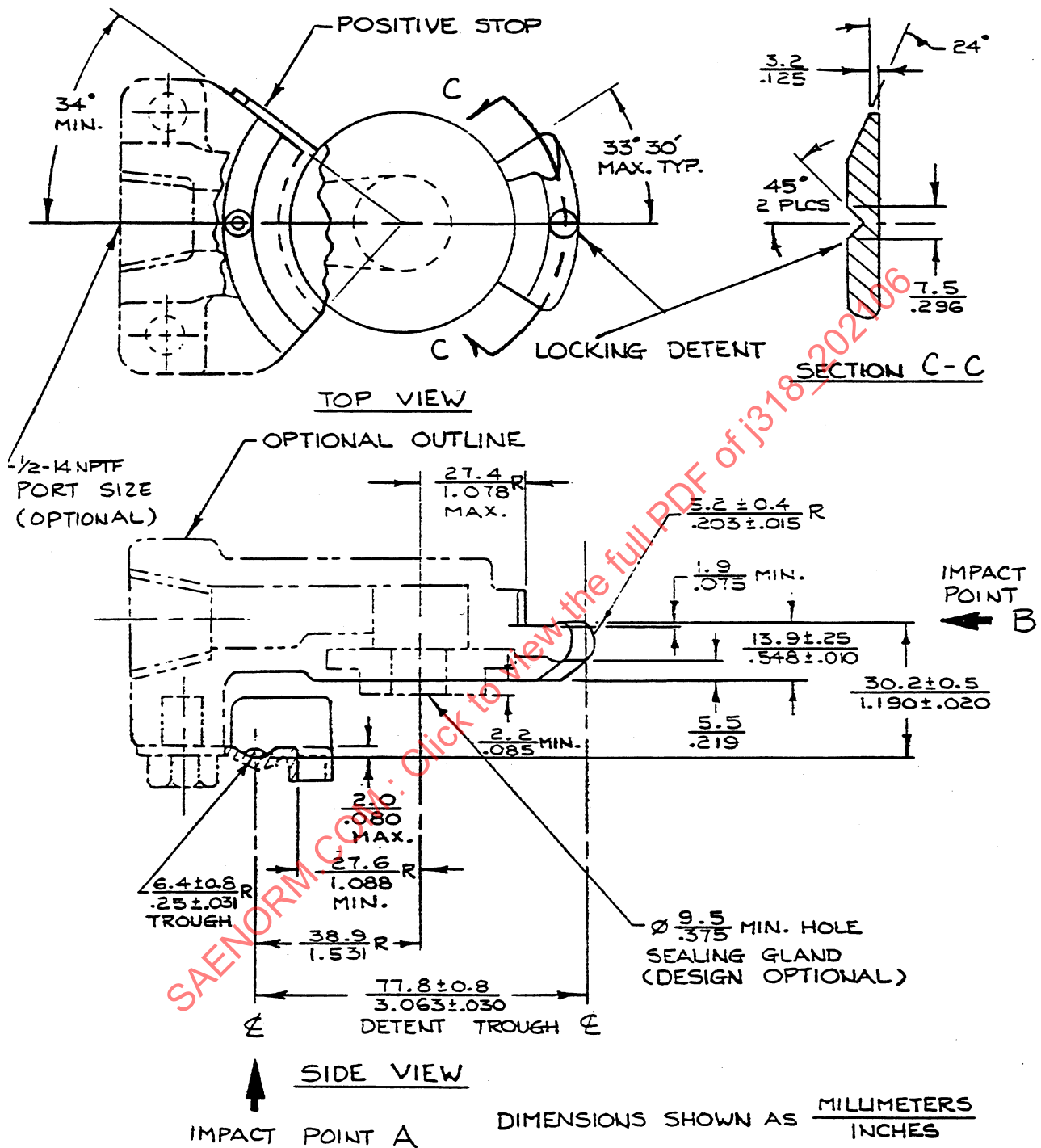


Figure 3 - Universal air brake coupler

4. TEST PROCEDURE

4.1 Corrosion Resistance Test

Two new pairs of couplers (one pair properly coupled with the threaded ports plugged and without internal pressure, and one pair uncoupled with the threaded ports plugged) shall be subjected to ASTM B117 for 240 hours. The customer may require additional tests be conducted according to SAE J2721.

4.2 Endurance Test

A new pair of couplers shall be coupled and uncoupled in the normal manner for 2500 complete cycles at a rate (speed) of 15 to 25 cpm. One complete cycle shall consist of one coupling and one uncoupling.

4.3 Break Away Test

Properly joined, a new pair of couplers shall be pulled apart ten times when connected to a line having $931 \text{ kPa} \pm 34 \text{ kPa}$ ($135 \text{ psi} \pm 5 \text{ psi}$) air pressure under a gradually applied load of not less than 222 N (50 lbf) nor more than 1334 N (300 lbf) along the hose axis.

4.4 Drop Test

Two new couplers shall be dropped from 1.8 m (6 feet) minimum onto concrete surface immediately after exposure to a temperature of $-40^\circ\text{C} \pm 3^\circ\text{C}$ ($-40^\circ\text{F} \pm 5^\circ\text{F}$) for a minimum of 6 hours. Orientation of the couplers shall be such that the couplers impact the concrete surface at points A and B as indicated in Figures 1 to 3.

4.5 Elevated Temperature

Two new pairs of couplers (one properly coupled and one uncoupled) shall be exposed to a temperature of $+70^\circ\text{C} \pm 3^\circ\text{C}$ ($+158^\circ\text{F} \pm 5^\circ\text{F}$) for a minimum of 24 hours.

4.6 Low Temperature

Two new pairs of couplers (one properly coupled and one uncoupled) shall be exposed to a temperature of $-40^\circ\text{C} \pm 3^\circ\text{C}$ ($-40^\circ\text{F} \pm 5^\circ\text{F}$) for a minimum of 6 hours.

5. PERFORMANCE REQUIREMENTS

After standard completion of each test procedure shown under Section 4, the coupler(s) shall satisfy each of the following performance requirements.

5.1 Coupling and Uncoupling Torque Performance

The torque required to uncouple a pair of couplers in a normal manner at an ambient temperature of $+24^\circ\text{C} \pm 8^\circ\text{C}$ ($+75^\circ\text{F} \pm 15^\circ\text{F}$) and at $689 \text{ kPa} \pm 34 \text{ kPa}$ ($100 \text{ psi} \pm 5 \text{ psi}$) air pressure shall be $11.3 \text{ Nm} \pm 5.6 \text{ Nm}$ ($100 \text{ lbf-in} \pm 50 \text{ lbf-in}$). The torque required to couple and uncouple a pair of couplers at an ambient temperature of $+24^\circ\text{C} \pm 8^\circ\text{C}$ ($+75^\circ\text{F} \pm 15^\circ\text{F}$) and at 0 kPa (0 psi) air pressure shall be $11.3 \text{ Nm} \pm 5.6 \text{ Nm}$ ($100 \text{ lbf-in} \pm 50 \text{ lbf-in}$).

5.2 Leak Rate

A pair of coupler halves, when joined properly is allowed a maximum leak rate of 25 SCCM of free air at $931 \text{ kPa} \pm 34 \text{ kPa}$ ($135 \text{ psi} \pm 5 \text{ psi}$) air pressure and ambient temperature of $+24^\circ\text{C} \pm 8^\circ\text{C}$ ($+75^\circ\text{F} \pm 15^\circ\text{F}$).