SAE International™

SURFACE VEHICLE STANDARD

SAE J2184 | REV. SEP2007

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Superseding J2184 MAY2000

(R) Vehicle Lift Points for Service Garage Lifting

RATIONALE

The purpose of this revision is to incorporate current information relating to automotive lift configurations which will allow new vehicle designers to provide better information and lifting point identification for service garage lifting.

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1. SCOPE

This SAE Standard is directed at the proper communication of the lift points on the vehicle frame or underbody to commercial service personnel for the purpose of raising passenger vehicles, light trucks, and vans completely off the shop floor. To this end, vehicle manufacturers are guided in the proper design of a lift point label and lift points located on the body/frame for use by service garages.

1.1 Purpose

The purpose of this document is to provide a uniform method to convey identification of proper lift points for vehicle service lifting to enhance the safety of service garage personnel and to minimize vehicle damage caused by improper lifting.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest Issue of all publications shall apply.

2.1.1 SAE Publication

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J1877 Recommended Practice for Bar-Coded Vehicle Identification Number Label

2.1.2 ALI Publication

Available from Automotive Lift Institute, P.O. Box 85, Cortland, NY 13045, Tel: (607) 756-7775, www.autolift.org.

ALI/LP-Guide Quick Reference Guide, Vehicle Lifting Points for Frame Engaging Lifts, (Domestic and Imported Cars and Light Trucks)

3. DEFINITIONS

3.1 Service Garage Lifting

Raising and stably supporting an automotive vehicle free of the ground, for the purpose of performing automotive vehicle service, by engaging structural elements of the vehicle such as wheels, body and frame members, axle housings and wheel suspension components.

3.2 Automotive Lift

The term “automotive lift” means “automotive vehicle service lift,” and is a lifting device specifically designed to raise and stably support an automotive vehicle free of the ground by engaging structural elements of the vehicle such as wheels, body and frame members, axle housings, and wheel suspension components.

3.3 Depression

An indentation recognizable after normal use for the life of the vehicle.

3.4 Boss

A projection recognizable after normal use for the life of the vehicle.

3.5 Hole

An opening recognizable after normal use for the life of the vehicle.

3.6 Lift Point Symbol

An equilateral triangle that identifies the lift point for vehicle service lifting.

3.7 Vehicle Lift Pads

A supplemental part of the vehicle located at the designated lift points in the shape of or identified with the lift point symbol. The symbol shall be recognizable after normal use for the life of the vehicle.

4. VEHICLE LIFT POINTS DRAWING

4.1 Purpose of the Drawing

This drawing shall indicate the location of vehicle lift points as designated by the vehicle manufacturer for service garage lifting. (See Figure 1.)

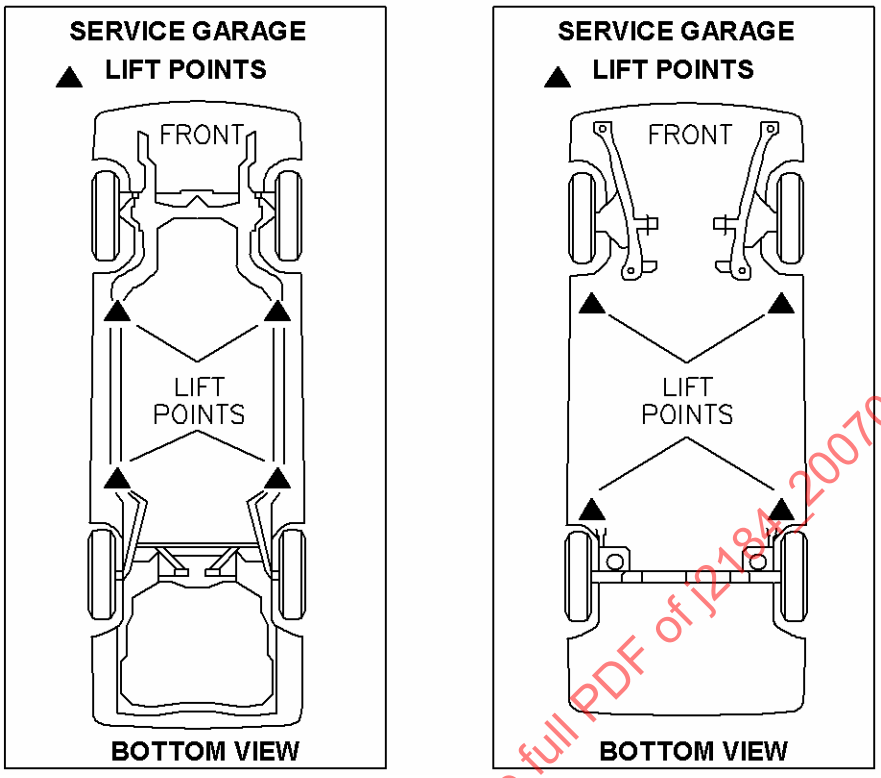

FIGURE 1 - TYPICAL LABEL DRAWING

4.2 Standard Format

The drawing shall follow the current practice of the vehicle manufacturer or use ANSI or SAE Standards for informational drawings. The following requirements shall be mandatory.

4.2.1 Title of Drawing

The words "SERVICE GARAGE LIFT POINTS" shall be in block capital letters.

4.2.2 Title Type Size

Lettering (font) shall be no smaller than 8 point.

4.2.3 Message

Graphics shall be used with a minimum number of additional words.

4.2.3.1 To orient the viewer, the message shall show the perimeter of the vehicle in a bottom view. The drawing shall contain the words “BOTTOM VIEW” located at the bottom of the drawing as shown, and the front of the vehicle shall be marked “FRONT” as shown.

4.2.3.2 The lift points shall be shown on the drawing by solid, equilateral triangles of contrasting color with a minimum of 3 mm (0.120 in) on a side. The lift points shall be marked “LIFT POINTS” as shown.

4.2.3.3 The drawing need not be vehicle specific.

4.2.3.4 Other text, such as any cautionary Information, shall be in upper and lower case letters (font) no smaller than 8 point.

4.2.4 Color

The color scheme of the drawing shall follow current practice of the vehicle manufacturer.

4.3 Location On Vehicle

The drawing may be included on a label and affixed to a non-removable part of the vehicle in a prominent location or communicated to manufacturer vehicle service technicians by whatever means normally employed by the vehicle manufacturer.

4.4 Dimensions

The drawing shall be no smaller than 40 mm (1.6 in) x 60 mm (2.4 in).

4.5 Durability

If a label is employed, it shall comply with SAE J1877, Sections 7.3 to 7.9, except 7.9.2.

5. BODY/FRAME MARKING AND LIFT PADS

5.1 Purpose of the Body/Frame Marking

This marking shall indicate the location of the lift points on the vehicle as designated by the vehicle manufacturer for service garage lifting.

5.2 Vehicle Lift Points Designation

The vehicle lift points shall be located on a non-removable part of the vehicle and designated by holes, bosses, and/or depressions in the shape of the lift point symbol. It is preferable to locate the holes bosses or depressions on the lift point surface but, some vehicle designs may require location on a non-horizontal surface immediately adjacent to the lift point. Lift point pads shall be in the shape of or marked with the vehicle lift point symbol. (See Figures 2 and 3.)

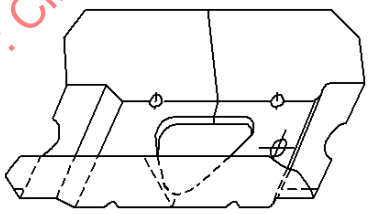

FIGURE 2 - TYPICAL LIFT POINT WITH TRIANGULAR HOLE

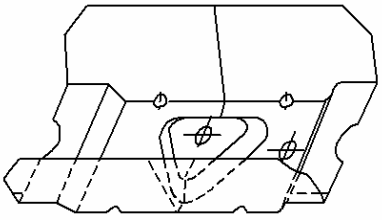

FIGURE 3 - TYPICAL LIFT POINT WITH TRIANGULAR BOSS/DEPRESSION

5.3 Vehicle Lift Point Pads

For serviceability, the vehicle lift point pads (if used) shall be replaceable.

5.4 Lift Point Symbol

The lift point symbol shall be used to identify the vehicle lift points. The symbols shall be easily reached, felt, or seen, and free of sharp edges. (See Figure 4.)

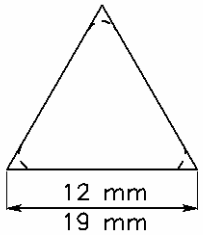

FIGURE 4 - LIFT POINT SYMBOL SIZE

5.4.1 Size

Each side of the equilateral triangle shall be not less than 12 mm (1/2 in) nor greater than 19 mm (3/4 in). Corners may have a slight radius. Lift point symbol orientation is at the discretion of the vehicle manufacturer.

5.4.2 Recognition

The symbol shall remain recognizable by sight or detectable by feel for the life of the vehicle in normal field operating and environmental conditions, such as mud, undercoating, OEM NVH treatment applications, etc.

5.4.3 All Lift Points

The lift point symbol shall be used to designate both front and both rear lift points.

6. VEHICLE MANUFACTURER LIFT POINT LOCATION

6.1 Lift Point Location

The vehicle manufacturer shall locate the vehicle lift points within the appropriate area(s) described in Figure 5. Accommodation by the greatest variety of lifts can be achieved by locating the vehicle lift points near the envelope center lines of the arc shaped envelopes.

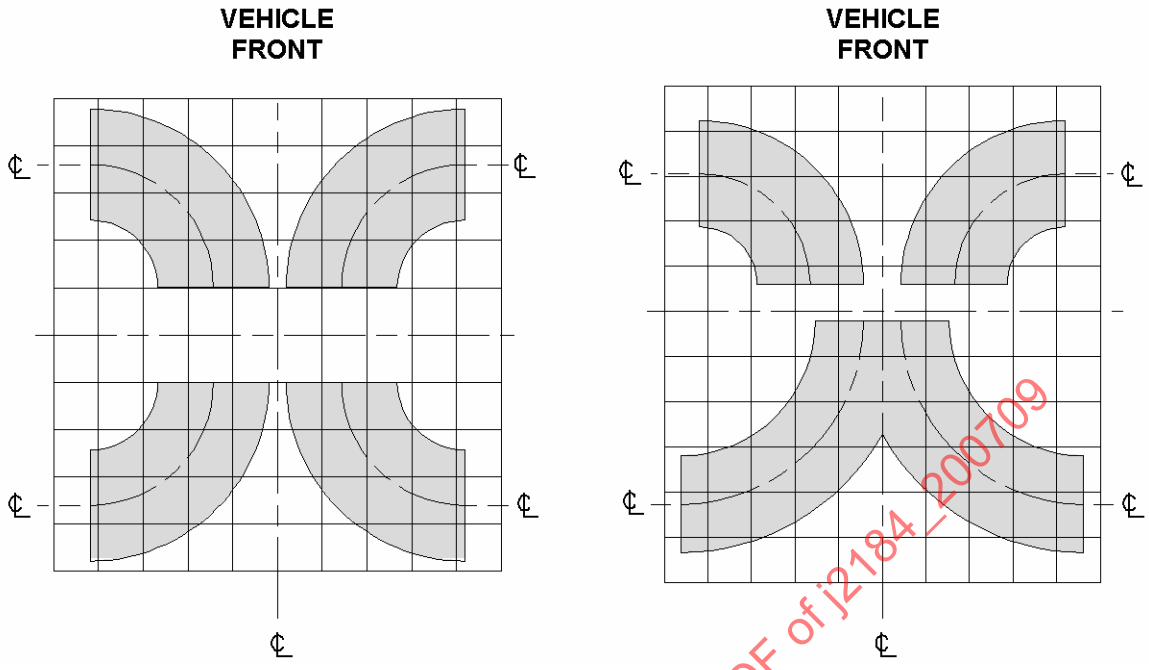

FIGURE 5 - ADAPTER ENVELOPE, SWING-ARM LIFTS
Grid Line Spacing is 305 mm (12 in)

6.2 Vehicle Center of Gravity

The vehicle manufacturer shall locate the vehicle center of gravity within the perimeter described by the lift points.

6.3 Lift Adapter Accommodation

The vehicle manufacturer shall provide individual vehicle lift points that will provide a rectangular lift adapter clearance footprint as shown in Figure 6. The plan view rotational orientation of the rectangular clearance footprint is at the discretion of the vehicle manufacturer.

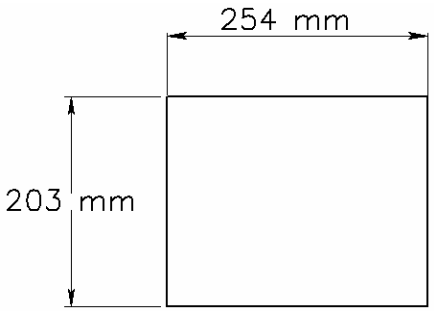

FIGURE 6 - MINIMUM ADAPTER FOOTPRINT
203 mm (8 in) by 254 mm (10 in)

6.4 Sill Clearance

Representative sill clearance dimensions for different automotive lift adapter styles found in the field are shown in Figure 7.

a	=	102 mm
b	=	124 mm
c		178 mm
d	=	267 mm
e	=	362 mm

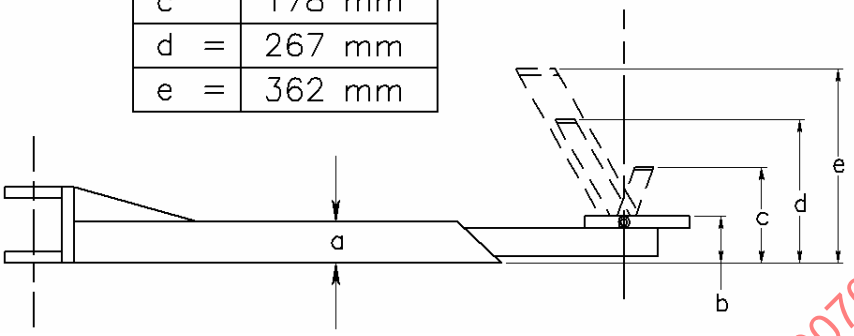

FIGURE 7A - FLIP-UP ADAPTER

a	=	102 mm
b	=	102 mm
c	=	168 mm
d	=	335 mm

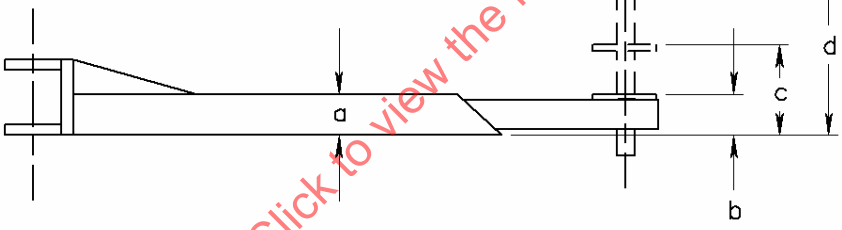

FIGURE 7B - SCREW-TYPE ADAPTER

a	=	102 mm
b	=	127 mm
c	=	203 mm
d	=	279 mm
e	=	355 mm

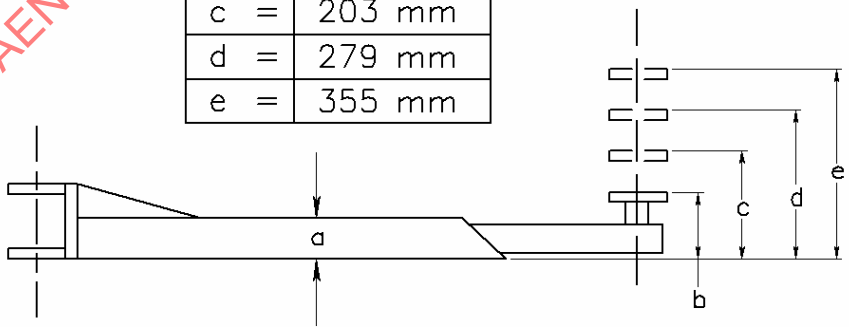

FIGURE 7C - STACKING ADAPTER