RECOMMENDED PRACTICE SAE J1142

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TOWABILITY DESIGN CRITERIA —PASSENGER CARS—SAE J1142

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SAE Recommended Practice

Report of Automotive Safety Committee approved July 1976.

1. Purpose—The purpose of this SAE Recommended Practice is to provide guidelines for the design of vehicles and procedures to minimize damage in the towing of the vehicle with conventional towing equipment in the event of disablement.

2. Conventional Towing Equipment

2.1 Towing Sling—PASSENGER CARS—Tow sling or equivalent, as shown in Fig. 1 for static loads up to 3000 lb (1400 kg).

2.2 Chains with J-Hooks and/or Grab-Hooks (As required with towing sling or hitch)—see Figs. 2 and 3.

2.3 Cross Beam—See Fig. 4.

2.4 Spacer Blocks—See Fig. 4.

NOTE: While the use of the crossbeam and/or spacer blocks is not encouraged, they are, nevertheless, approved as conventional towing equipment. Because of the limited availability of the conventional crossbeam and spacer blocks in the field and the difficulty of application in using them, vehicles should be designed to eliminate their need, whenever possible.

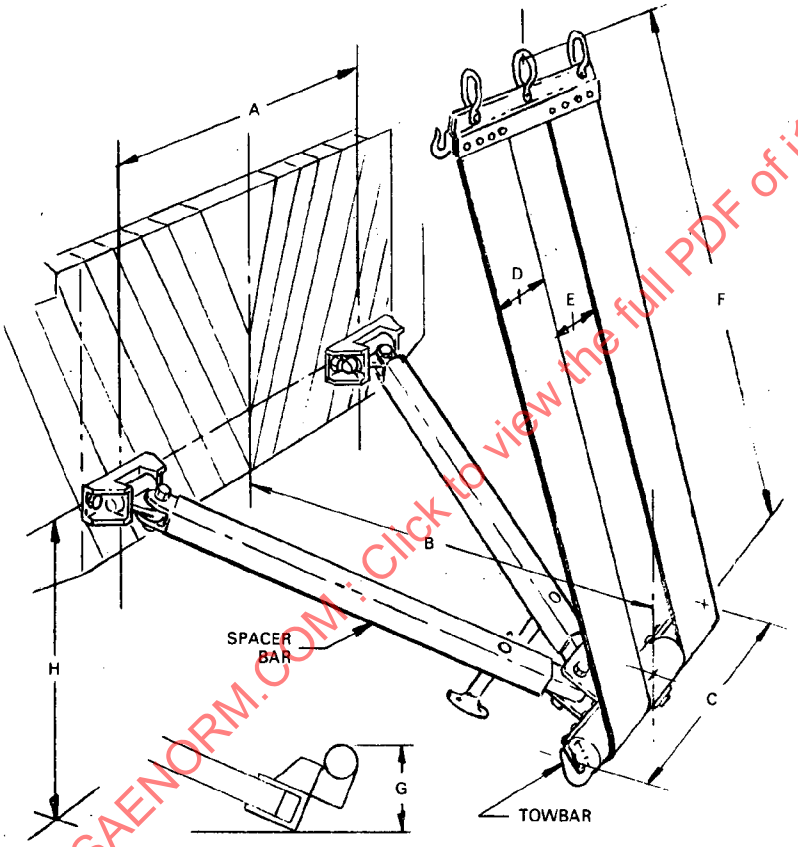
3. Vehicle Requirements

3.1 Suspension

3.1.1 FRONT SUSPENSION

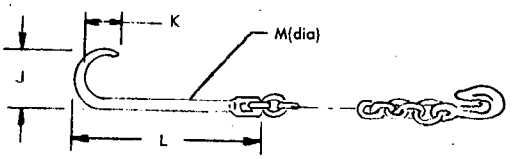
3.1.1.1 Components shall be designed to withstand the forward extension force exerted by the J-hook/chain assembly.

3.1.1.2 Components shall be designed to withstand the forward extension forces caused by the wheels hitting roadway obstacles when towing from the rear.



Dimensions—in (mm)		
A:	36–38	(915–965)
B:	34–36	(865–915)
C:	34–36	(865–915)
D:	8–10	(205–255)
E:	13–20	(330–510)
F:	44–48	(1120–1220)
G:	4–5.6	(100–150)
H:	24–32	(610–815)

FIG. 1—TOWING SLING UP TO 3000 LB (1400 KG)



Dimensions—in (mm)

J:	4.5–5.5	(115–140)
K:	3–4	(75–100)
L:	14–15	(355–380)
M:	0.85–0.90	(22–23)
Chain:	5/16 dia × 90–96 long	
	(8 dia × 2290–2440 long)	

FIG. 2—J-HOOK CHAIN ASSEMBLY FOR USE WITH TOWING SLING

3.1.1.3 Attachments for towing equipment shall be provided to avoid interference with components vulnerable to damage.

3.1.2 REAR SUSPENSION

3.1.2.1 Components shall be designed to withstand the rearward extension forces induced by the J-hook/chain assembly.

3.1.2.2 Attachments for towing equipment shall be provided to avoid interference with components vulnerable to damage.

3.2 Bumpers

3.2.1 Bumpers, bumper guards, bumper attaching assemblies shall be designed to withstand loads imposed by the towing equipment.

3.2.2 License plate mounting locations shall be designed to avoid interference with the towing equipment, whenever possible.

3.3 Body Panels

3.3.1 Body panel design including, but not limited to, valance panels and air deflectors, shall consider the loads and position of the towing equipment.

3.3.2 When adequate clearance between towing equipment and body panels cannot be provided, such body panel materials and their attachment shall be specified for elastic flexibility to −20°F (−30°C).

3.3.3 Adjacent body panels shall have sufficient clearance to allow for body/chassis deflections under lifting and towing loads.

3.4 Underbody

3.4.1 Adequate ground clearance (a function of approach angle, departure angle, breakover angle, and standing height) shall be provided to allow damage-free lifting and towing.

3.4.2 Underbody design including, but not limited to, braking systems, spare tire, fuel tank, exhaust system, and cooling system, shall consider the placement of tow sling straps, crossbar, J-hook/chain assembly crossbeam, and/or spacer blocks.

3.5 General

3.5.1 Vehicles shall be designed to allow towing from both front and rear.

3.5.2 Vehicles shall be designed to allow towing attachments without the removal of any components such as, but not limited to, license plates, auxiliary lights, horns, bumper guards, exhaust pipe extensions, air deflectors, trailer hitches, etc.

3.5.3 Vehicles shall be designed to allow towing without the addition of any lubricants or materials not required for normal vehicle operation.

3.5.4 Vehicles shall be designed to allow the towbar end of the sling spacer bars to be lower than the towing vehicle (wrecker) end of the spacer bars while towing.

3.5.5 Vehicles shall be designed to allow procedures which utilize no more than the conventional towing equipment described in Section 2. NOTE: It is not to be construed that all the conventional towing equipment must be used in a procedure.

3.5.6 Vehicles shall be designed to allow towing for a minimum of 50 miles (80 km) at 50 miles/h (80 km/h). When towing on the drive wheels above 35 miles/h (55 km/h) and/or beyond 30 miles (50 km), the propeller shaft, or axle shafts as applicable, may be disconnected or removed. The use of a dolly may be also specified for these conditions.

4. Towing Instruction Requirements

4.1 Procedures should be considered as part of normal service information.

4.2 Procedure details shall include the following:

(a) Photographs or line drawings of attachments.

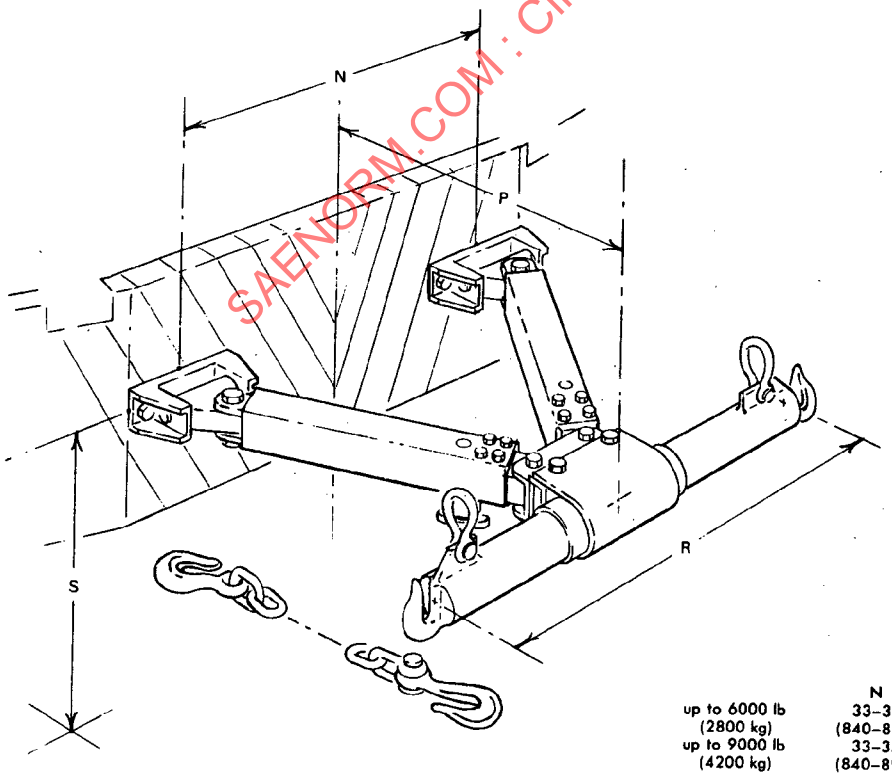
(b) Description of hook, crossbeam, spacer block, and safety chain placements.

(c) Specification of lifted height of towed vehicle.

(d) Speed and distance restrictions.

(e) Safety precautions.

4.3 The use of a dolly or the removal of the lifted wheels for purposes of test procedures, such as SAE J1143 Towed Vehicle/Wrecker Attachment Test



Dimensions—in (mm)

	N	P	R	S
up to 6000 lb (2800 kg)	33–35 (840–890)	26–28 (660–710)	37–39 (940–990)	34–40 (865–1015)
up to 9000 lb (4200 kg)	33–35 (840–890)	34–37 (865–940)	42–44 (1065–1120)	45–50 (1145–1270)

FIG. 3—TOWING HITCHES