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**Location and Operation of Instruments
and Controls in Motor Truck Cabs
SAE J680b**

**SAE Recommended Practice
Last Revised August 1975**

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APPEAR IN THE NEXT EDITION
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PREPRINT

LOCATION AND OPERATION OF INSTRUMENTS AND CONTROLS IN MOTOR TRUCK CABS — SAE J680b

SAE Recommended Practice

Report of Truck and Bus Technical Committee approved December 1954 and last revised by Truck and Bus Technical Committee and Transportation and Maintenance Technical Committee August 1975.

The location and operation of instruments and controls herein described are recommended for adoption by manufacturers of trucks and truck-tractors in new or revised designs in order to avoid confusion when drivers shift from one truck to another, to promote safety and convenience, and to simplify design, production, and servicing. This information report shall apply to all on-highway trucks and truck-tractors equipped with power brake systems and having a gvwr rating of 26,000 lb or more. Of prime importance in this information report is the basic premise that all controls requiring operation while the vehicle is in motion be located so that the driver can manipulate them with his right hand and keep his left hand on the steering wheel. Controls operated only when the vehicle is not in motion, such as the ignition key, starter switch, and engine shutdown, may be located at the left side of the instrument panel and be manipulated with the driver's left hand.

Location of Instruments and Controls—Instruments, indicators, and controls necessary for the safe operation of a motor vehicle are divided into six basic groups and assigned to specific areas for the purpose of this information report. The six areas are numbered and their location is shown in Fig. 1. The exact placement of the various gages within a specified area is left to the discretion of the truck builder. It is the intent of this information report to define only the general areas for the location of instruments and controls. Fig. 1 does not represent the instrument panel of any particular vehicle and may be modified to reflect variations such as console type panels. All instruments and controls must be located out of the head impact area and must be within reach of a properly restrained driver.

Area 1—The instruments assigned to area 1 are designated as engine gages. They include such basic items as the tachometer, oil pressure gage, water temperature gage, and ammeter or voltmeter.

Area 2—The instruments assigned to area 2 are defined as operational gages and relate to the operation of the vehicle. Included in this area are the speedometer, the reservoir air pressure gage, application air pressure gage, and fuel tank level gage.

Area 3—Area 3 is generally to the right and/or below the operational gage area and provides space for lamp switches.

Area 4—The windshield wiper controls are assigned to area 4 and

are located below or to the right of area 3. When two separate controls are utilized, they must be placed in a horizontal line so that the position of the control indicates the position of the wiper to be operated. If the vehicle is equipped with a separate hand control for a windshield washer, it should also be located in area 4. On vehicles equipped with above-the-windshield wiper units, area 4 may be optionally located in the header area within the reach of the driver's right hand.

Area 5—Power operated emergency and parking brake controls are located in area 5. The placement of the various controls included in this area is shown in Fig. 2. Depending on the air brake piping system employed on a particular vehicle, one or all of the controls indicated in Fig. 2 may be used on a truck or tractor. Fig. 3 shows an optional arrangement of the controls assigned to area 5, employing a vertical rather than a horizontal alignment.

The *tractor protection valve control* (trailer emergency control valve) is to be located at the left side or bottom of the emergency brake control area. It should be a push-pull type of control valve with an octagonal-shaped knob having no sharp corners and colored red. This valve should be identified with a suitable escutcheon plate or lettering on the knob reading: TRAILER EMERGENCY. PULL TO APPLY; PUSH TO RELEASE.

The *parking/emergency brake control valve* shall be of the push-pull type having a yellow colored knob of a basically diamond shape configuration with no sharp corners. This valve should be to the right of, or above, the tractor protection valve but with suitable spacing provided between it and the tractor protection valve. The escutcheon plate or knob for this control should read: PARKING BRAKE. PULL TO APPLY; PUSH TO RELEASE.

The *emergency parking brake release control* should be located to the right of or above the parking brake control valve. This control should be spring loaded and of the push-and-hold-to-operate type, with a knob that is round in shape and green in color. The lettering on the escutcheon plate or knob used with this control should read: EMERGENCY PARKING BRAKE RELEASE. PUSH AND HOLD. With the advent of Federal Motor Vehicle Safety Standard 121 the requirements for in-cab brake control valves changed due to a revision of the vehicle air brake system. Area 5 is the only portion of the instrument panel that is affected by

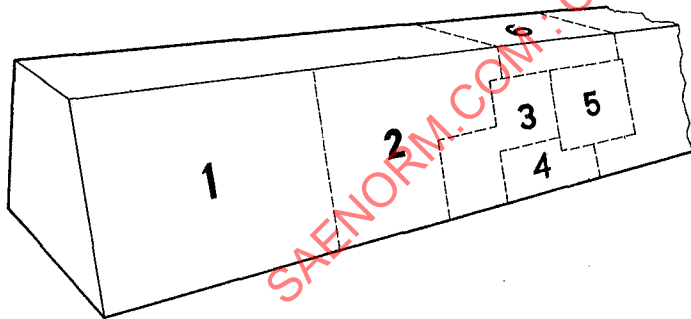


FIG. 1—LOCATION OF INSTRUMENT AND CONTROL GROUPS

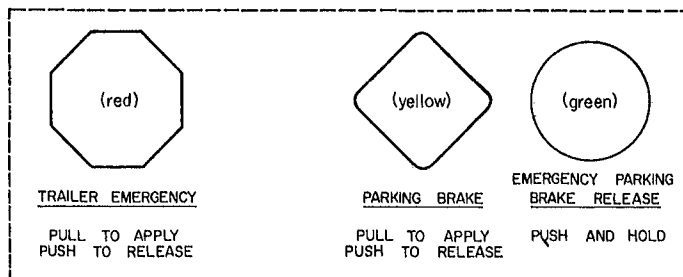


FIG. 2—PLACEMENT OF INDIVIDUAL CONTROLS IN EMERGENCY AND PARKING BRAKE CONTROL AREA

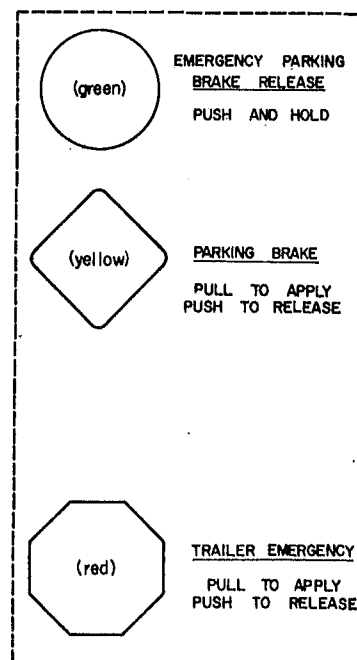


FIG. 3—OPTIONAL PLACEMENT OF INDIVIDUAL CONTROLS IN EMERGENCY AND PARKING BRAKE CONTROL AREA

this change and will vary in configuration but not location.

The original designation and definition for Area 5 as included in this information report plus Figure 2 and Figure 3 will continue to apply to vehicles in service prior to the effective date of FMVSS 121. For vehicles equipped with FMVSS 121 air brake systems the following description will apply:

Area 5 (FMVSS 121)—The trailer air supply valve and the parking brake control valves are located in Area 5. The placement of the various controls included in this area is shown in Figure 4. If a vertical rather than a horizontal alignment is employed the optional arrangement of Area 5 controls is shown in Figure 5.

The *trailer air supply valve* is to be located at the left side or bottom of Area 5. It should be a push-pull type of control valve with an octagonal shaped knob having no sharp corners and colored red. This valve should be identified with a suitable escutcheon plate or lettering on the knob reading: **TRAILER AIR SUPPLY. PULL TO EVACUATE; PUSH TO SUPPLY.**

The *tractor-trailer parking brake control valve* shall be of the push-pull type having a yellow colored knob of a basically diamond shape configuration with no sharp corners. This control valve should be in Area 5 to the right of, or above, the trailer air supply valve. The escutcheon plate or knob for this control should read: **TRACTOR-TRAILER PARKING BRAKES. PULL TO APPLY; PUSH TO RELEASE.**

The *tractor only parking brake control valve* is to be located in Area 5 at the right or top of the tractor-trailer parking brake control. This valve should be of the push-pull type with a round shape blue colored knob. The escutcheon plate or knob for this control should read: **TRACTOR ONLY PARKING BRAKE. PULL TO APPLY; PUSH TO RELEASE.**

NOTE: Trucks conforming to FMVSS 121 not designed to tow trailers shall use the tractor only parking brake control valve with the round blue colored knob. The wording on the associated escutcheon plate or knob may be revised to read: **PARKING BRAKE. PULL TO APPLY; PUSH TO RELEASE.** No other brake control valves are required on this type of vehicle. The order of marking is optional as long as sizing of letters, positioning or other means are used to distinguish identification from operating instructions.

Area 6—The controls to actuate the interaxle differential lockout and the front wheel brake limiting valve are assigned to area 6 which is at the top or upper face of the instrument panel and to the right of the driver. Either one or both of these controls may appear in a truck or tractor, depending on its drive configuration. Mode of operation for these valves should be toggle action (flip type). To distinguish between

the two valves when both are utilized on the same vehicle, a formed guard should also be applied to the inner-axle differential lockout control for easy identification. An escutcheon plate is required for each valve with suitable wording to describe its function and direction of operation.

Visible Warning Indicator Lamps—Indicator lamps are not assigned to a specific location on the instrument panel but they must be within the driver's view. Included in this category are the low oil pressure lamp, the high water temperature lamp, and the low air pressure lamp. The high-beam indicator lamp and the turn signal indicator lamps, when not incorporated in the turn signal switch, should also meet the requirements for this category. Warning lamps must have suitable descriptive wording to indicate their function.

Secondary Instruments—Instruments not specifically described in this information report considered to not be essential for the safe operation of the vehicle may be placed at the option of the vehicle manufacturer. If space permits, instruments relating to the engine (such as the pyrometer, manifold pressure gage, or engine oil temperature) should be located in area 1. Likewise, those instruments relating specifically to the vehicle such as axle or transmission temperature gages should be placed in area 2. If this positioning is not feasible, optional locations are permitted by this information report.

Additional Cab Controls—Controls other than those specifically assigned to areas 3, 4, 5, and 6 may be placed at the option of the vehicle manufacturer with the requirement that no other devices be placed in the restricted area assigned to emergency and parking brake controls.

Turn Signals—Turn signal controls should remain to the left of the steering wheel because of tradition and the ease of operation with the driver's hand on the steering wheel.

Trailer Brake Hand Control—The trailer brake hand control (when used) must be located in its traditional position adjacent to the steering wheel and must be capable of being operated with the driver's right hand. Physical attachment to the steering column or dash assembly is optional.

Accessory Controls—Controls for accessory items not used when the vehicle is operating on the highway, such as fifth wheel slide, fifth wheel lock, and trailer bottom dump actuation, must be treated in a special manner to prevent accidental activation. If these controls are located on the dash, they must be covered with a suitable guard so that accidental operation while the vehicle is moving is prevented. If these are not located on the dash, they must be placed in an area not easily accessible to the driver when the vehicle is in operation on the highway, such as on the floor or engine tunnel to the right of the driver.

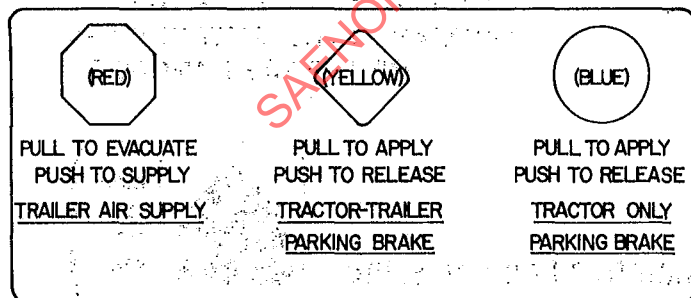


FIG. 4—PLACEMENT OF FMVSS 121 CONTROLS IN TRAILER AIR SUPPLY AND PARKING BRAKE CONTROL AREA.

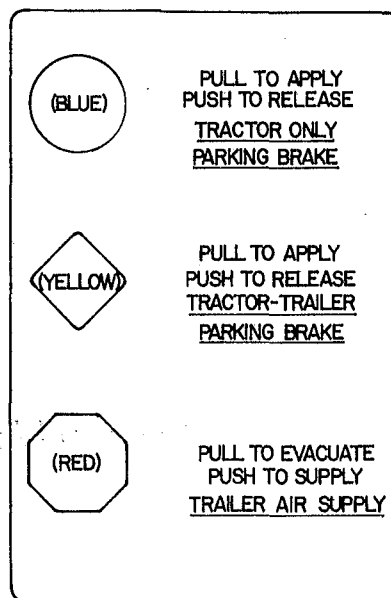


FIG. 5—OPTIONAL PLACEMENT OF FMVSS 121 CONTROLS IN TRAILER AIR SUPPLY AND PARKING BRAKE CONTROL AREA.

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