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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE STANDARD

SAE J1071

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An American National Standard

OPERATOR CONTROLS FOR GRADERS

***Foreword*—**This Reaffirmed Document has not changed other than to put it into the new SAE Technical Standards Board Format.

Report of the Construction and Industrial Machinery Technical Committee, approved July 1974, editorial change June 1977, reaffirmed without change June 1985.

***1. Scope*—**This standard covers the relative position and direction of motion of controls which influence the movement of the machine and the operating direction only of equipment controls.

There is no intention to wliminate or restrict the use of combination controls, automatic controls, or special operating controls.

1.1 Purpose—This SAE Standard is intended as a guide for designing uniform operator controls for graders. Graders are defined in SAE J1057 (June, 1981).

2. References

2.1 Related Publications

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J898—Control Locations for Off-Road Work Machines

3. General

3.1 Control function and movement shall be clearly identified except when a control is well recognized due to commonly established shape and location convention.

3.2 The recommendations made herein are based on the human factors consideration that operators expect a consistent effect from any given direction of movement of the control.

4. Machine Controls

4.1 Steering—The steering control(s) shall be located directly in front of the seat. Clockwise rotation or rearward motion shall turn the machine to the right; counterclockwise rotation or forward motion shall turn the machine to the left. Rear steer controls shall be located on the steering column or to the right of the steering column.

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4.2 Service Brakes—The service brake pedal shall be located so that it can be operated with the operator's right foot with the direction of motion forward and/or downward for application.

4.3 Clutch Control—This pedal, if provided, shall be located so that it can be operated with the operator's left foot with the direction of motion forward and/or downward for disengagement.

4.4 Engine Speed

4.4.1 THROTTLE—The throttle shall be located so that it can be operated with the operator's right hand.

4.4.2 ACCELERATOR—The accelerator pedal, if provided, shall be located so that it can be operated with the right foot with the direction of motion forward and/or downward to increase engine speed.

4.4.3 ACCELERATOR/DECELERATOR—The accelerator/decelator pedal, if provided, shall be located so that it can be operated with the right foot. With the right foot resting on the pedal, pushing downward with the toe shall increase engine speed and pushing downward with the heel shall decrease engine speed.

4.4.4 DECELERATOR—The decelerator pedal, if provided, shall be located so that it can be operated with the right foot with the direction of motion forward and/or downward to decrease engine speed.

4.5 Transmission Selector

4.5.1 All hand-operated gear selectors shall be located so that they can be operated with the right hand.

4.5.2 DIRECTION CONTROL

4.5.2.1 *Hand Operated*—If a separate direction control is provided, it shall be located to the left of all other gear selectors and shall be moved forward from neutral for forward motion and rearward from neutral for rearward motion.

4.5.2.2 *Foot Operated*—This control, if provided, shall be located so that it can be operated with the left foot. With the foot resting on the pedal, pushing downward with the toe shall cause forward motion and pushing downward with the heel shall cause rearward motion.

4.5.3 A device shall be provided that will permit securing the transmission in neutral on nondirect-drive machines.

4.5.4 A device shall be provided to insure that the engine cranking torque will not be transmitted through the power train and cause machine movement.

5. Equipment Controls

5.1 Circle Turn (if provided)—Moving the control forward or rotating the control counterclockwise shall rotate the blade counterclockwise. Moving the control rearward or rotating the control clockwise shall rotate the blade clockwise.

5.2 Blade Lift—Moving the control(s) forward shall lower the blade; moving the control(s) rearward shall raise the blade.

5.3 Circle Side Shift—Moving the control forward or to the left shall shift the circle to the left. Moving the control rearward or to the right shall shift the circle to the right.

5.4 Wheel lean (if provided)—Moving the control forward or to the left shall cause the wheels to lean to the left. Moving the control rearward or to the right shall cause the wheels to lean to the right.

5.5 Blade Side Shift (if provided)—Moving the control forward or to the left shall shift the blade to the left. Moving the control rearward or to the right shift the blade to the right.

5.6 Blade Tilt (if provided)—Moving the control forward shall move the top edge of the blade forward; moving the control rearward shall move the top edge of the blade rearward.

5.7 Scarifier, Ripper, and Other Attachments—Moving the control upward, rearward, or toward the operator shall raise the attachment; moving the control downward, forward, or away from the operator shall lower the attachment.

PREPARED BY THE SAE CONSTRUCTION AND INDUSTRIAL MACHINERY TECHNICAL COMMITTEE