

2.1.1 SAE Publications

Available from SAE International, 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 J1362 Graphical Symbols for Operator Controls and Displays on Off-Road Self-Propelled Work Machines

SAE J1814 Operator Controls—Off-Road Machines

SAE J2022 Classification, Nomenclature, and Specification Definitions for Horizontal Earthboring Machines

2.2 Related Publication

The following publication is provided for information purposes only and is not a required part of this document.

2.2.1 SAE Publication

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SAE J2305 Hazard Reduction for Horizontal Earthboring Machines

3. DEFINITIONS

3.1 Thrust/Travel Controls

Those controls that control the advance and retraction of the tool.

3.2 Rotation Controls

Those controls that control the direction and/or the rotation of the tool.

3.3 Speed Controls

Those controls that control the speed of the engine, rotation of the tool, travel of the tool, and forward or lateral movement of the machine.

3.4 Drilling Fluid Controls

Those controls that control the flow and volume of drilling fluid.

3.5 Air Controls

Those controls that regulate the flow of air.

3.6 Stop Controls

Those controls that stop power to machine or components.

3.7 Auxiliary Controls

Those controls that actuate other functions such as winch, anchoring, and setup.

3.8 Horizontal Earthboring Machine

A machine used to bore horizontally through the earth by means of a rotating tool, or non-rotating pushing or piercing tool (SAE J2022).

4. CONTROL IDENTIFICATION AND DEFINITION

4.1 Auger Machine

A machine used to drill earth horizontally by means of a cutting head and auger or other functionally similar device. The machine may be cradle or track type (SAE J2022).

4.1.1 Thrust

See 3.1.

4.1.2 Rotation

See 3.2.

4.1.3 Speed

See 3.3.

4.1.3.1 Throttle

Changes power speed.

4.1.3.2 Thrust

Changes thrust speed.

4.1.3.3 Rotation

Changes the rotation speed of the auger.

4.1.4 Push Bar

Unlatches the push bar so it can be repositioned.

4.1.5 Brake

Applies brake.

4.1.6 Stop

See 3.6.

4.1.7 Auxiliary

See 3.7.

4.1.7.1 Rock Drill

Starts, stops, and/or regulates power to rock drill mechanism.

4.1.7.2 Drilling Fluid

See 3.4.

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4.1.7.3 Hammer

Starts, stops, and/or regulates power to hammer.

4.1.7.4 Winch

Starts and stops winch.

4.1.7.5 Power

Connects transmission of power to auger drive.

4.2 Pipe Pusher

A machine that pushes or pulls a rod or pipe to produce a bore by means of compaction (SAE J2022).

4.2.1 Travel

See 3.1.

4.2.2 Grip

Applies travel to rod or pipe.

4.2.3 Speed

See 3.3.

4.2.3.1 Throttle

Changes power speed.

4.2.3.2 Travel

Changes travel speed.

4.2.4 Stop

See 3.6.

4.2.5 Auxiliary

See 3.7.

4.3 Rotary Rod Machine

A machine used to drill earth horizontally by means of a compaction bit or a cutting head attached to a rotating rod (not an auger). Such drilling may include fluid injected to the cutting head through a hollow rod (SAE J2022).

4.3.1 Travel

See 3.1.

4.3.2 Rotation

See 3.2.

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4.3.3 Speed

See 3.3.

4.3.3.1 Throttle

Changes power speed.

4.3.3.2 Thrust Speed

Changes speed of advance and retraction of the tool.

4.3.3.3 Rotation Speed

Changes the speed at which the rod turns.

4.3.4 Drilling Fluid

See 3.4.

4.3.4.1 Flow

Turns drilling fluid on.

4.3.4.2 Volume

Changes the drilling fluid flow rate.

4.3.4.3 Pressure

Changes the drilling fluid pressure.

4.3.5 Air

Controls air which may be used to drill and/or flush bore.

4.3.5.1 Flow

Turns air on.

4.3.5.2 Oiler

Changes amount of lubricating oil injected in supply air.

4.3.6 Stop

See 3.6.

4.3.7 Auxiliary

See 3.7.

4.3.7.1 Breakout

Controls the joint make and/or break mechanism.

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4.3.7.2 Grip

Applies travel to rod or pipe.

4.4 Impact Machine

A type of machine that pierces the earth (piercing tool) or rams an object to produce a bore (ramming machine) (SAE J2022).

4.4.1 Air

Controls air supply.

4.4.1.1 Flow

Turns air on.

4.4.1.2 Oiler

Changes amount of lubricating oil injected in supply air.

4.4.2 Hydraulic

Controls hydraulic oil supply.

4.4.3 Direction

Changes direction of travel.

4.4.4 Auxiliary

See 3.7.

4.5 Horizontal Directional Drilling Machines

A machine which can launch a steerable cutting head attached to the end of a rotating drill pipe string used for boring through the earth in a horizontal direction. Boring most generally includes fluid injection to the cutting head through the drill pipe and also generally includes enlarging the bore with a back reamer (SAE J2022). See SAE J1362 for typical control symbols.

4.5.1 Carriage Travel

See 3.1.

4.5.2 Drill Head Rotation

See 3.2.

4.5.3 Speed

See 3.3.

4.5.3.1 Throttle

Changes engine speed.