

Hydraulic Excavator Operator Controls — SAE J1177

SAE Recommended Practice
Approved April 1978

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1. Purpose

1.1 This SAE Recommended Practice is intended as a guide for designing uniform two lever type operating controls for mobile hydraulic excavators, either wheel mounted or crawler mounted on independently reversible tracks.

1.2 It is not intended to limit new design innovation or to force a change on existing machines.

2. Scope

2.1 This recommended practice covers mobile hydraulic excavator controls and the specific arrangement and direction of motion for the primary controls.

2.2 This recommended practice applies to mobile hydraulic excavators. (A mobile hydraulic excavator is defined as, *A self-propelled machine with an upperstructure capable of continuous rotation and which digs, elevates, swings, and dumps material by action of the boom and arm or telescoping boom with bucket.*)

3. Definitions

3.1 **Working Equipment Controls**—Those controls that actuate the functions that dig, elevate, swing, and dump material.

3.1.1 **Primary Controls**—Those controls that actuate the following basic functions common to all hydraulic excavators: boom, arm or telescoping boom, swing, and bucket or clam.

3.1.2 **Secondary Controls**—Those controls that actuate other equipment functions (if provided) such as bucket tilt, bucket rotate, extendible arm, adjustable boom, combination bucket, etc.

3.2 **Machine Travel Controls**—Those controls that actuate any functions that influence machine movement or travel.

3.2.1 **Wheel Mounted Machine**

3.2.1.1 **Primary Controls**—Those controls that actuate the following basic travel functions: speed, steering, travel direction, service brake, and clutch (if provided).

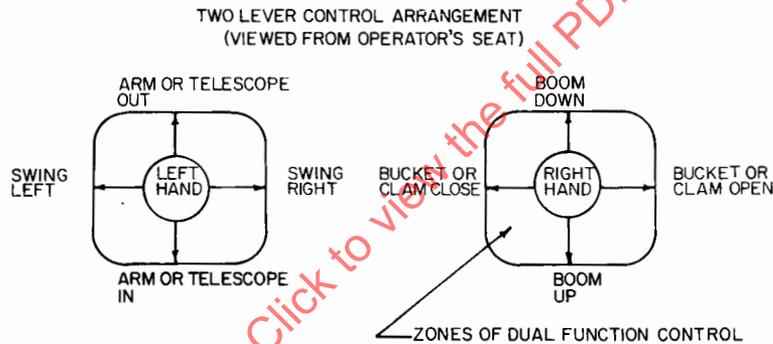
3.2.1.2 **Secondary Controls**—Those controls that actuate other travel functions (if provided) such as transmission selector, emergency brake, parking brake, turn signal, etc.

3.2.2 **Crawler Mounted Machine**

3.2.2.1 **Primary Controls**—Those controls that actuate the following basic travel functions: speed, steering, and travel direction.

3.2.2.2 **Secondary Controls**—Those controls that actuate other travel functions (if provided) such as transmission selector, parking brake, etc.

3.3 **Auxiliary Controls**—Those controls that actuate all other functions that pertain to overall machine performance such as outriggers, engine speed, engine start and stop, swing brakes, horn, digging brakes, and steering selector.



FUNCTIONS FOR VARIOUS TYPES OF EXCAVATORS ARE AS FOLLOWS:

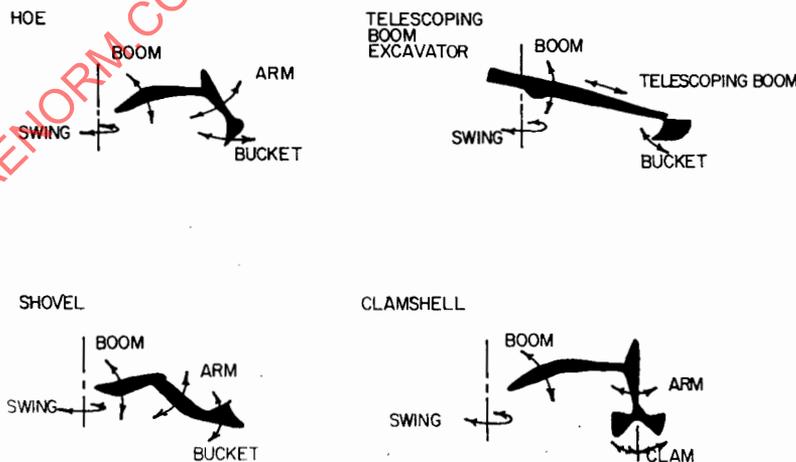


FIG. 1—PRIMARY WORKING EQUIPMENT CONTROLS AND FUNCTIONS

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