

# SURFACE VEHICLE RECOMMENDED PRACTICE

**SAE** J1307

REV.  
NOV86

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Supersedes J1307 MAY81

Submitted for recognition as an American National Standard

## (R) EXCAVATOR & BACKHOE HAND SIGNALS

**Foreword**—This Document has also changed to comply with the new SAE Technical Standards Board Format.

1. **Scope**—This recommended practice applies to mobile excavators, as defined in SAE J1057, Identification Terminology of Earthmoving Machines, and backhoes as defined in SAE J326, Nomenclature Hydraulic Backhoes.

1.1 **Purpose**—This SAE Recommended Practice provides a set of uniform hand signals for use by a signalman to direct an operator in the movement of the load or the working equipment or travel of a mobile excavator or backhoe.

### 2. References

2.1 **Applicable Publications**—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

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

SAE J326—Nomenclature Hydraulic Backhoes

SAE J1057 JUN81—Identification Terminology of Earthmoving Machines

### 3. Signals

3.1 **Standard Signals**—When excavator or backhoe work conditions require hand signals, they shall be provided or posted conspicuously for use of both signalman and operator. Hand signals, as specified in paragraph 4.2, shall be the standard signals. No excavator or backhoe motions shall be made unless signals are clearly understood by both signalman and operator.

3.2 **Hand Signals**—Hand signals shall be executed as defined and illustrated in Figure 1. Direction and motion of the hands and arms with respect to the machine shall define the intended signal, regardless of location or body orientation of the signalman.

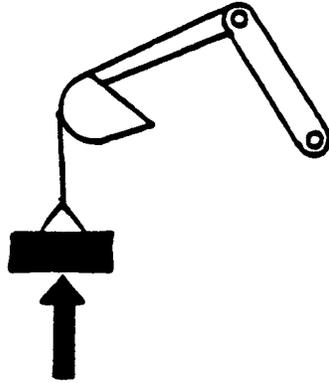
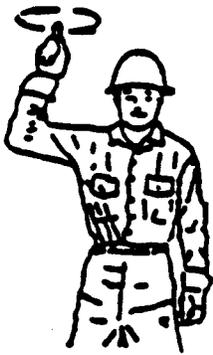
3.3 **Special Signals**—When signals for auxiliary equipment functions or conditions not covered in paragraph 4.2 are required, they shall be agreed upon in advance by the operator and signalman. They shall not conflict with the specified standard hand signal.

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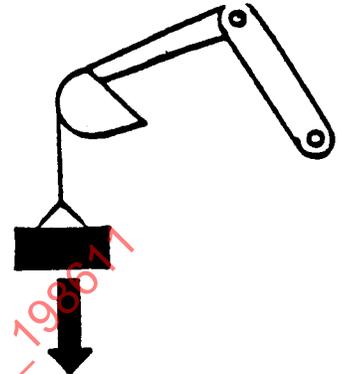
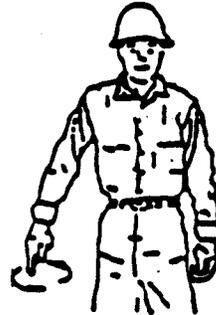
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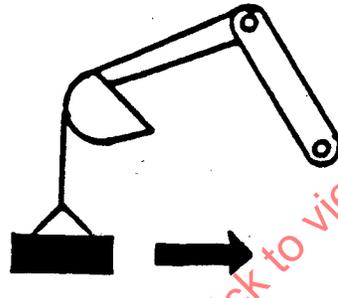
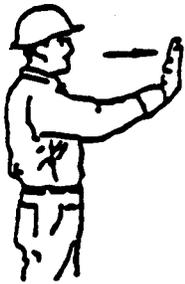
3.4 **Instructions**—When it is desired to give instructions to the operator other than provided by the established signal system, all excavator or backhoe motions shall first be stopped.



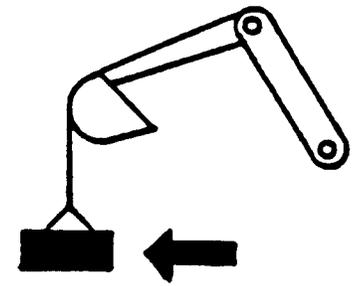
**RAISE LOAD VERTICALLY.** With either forearm vertical, forefinger pointing up, move hand in small horizontal circle.



**LOWER LOAD VERTICALLY.** With either arm extended downward, forefinger pointing down, move hand in small horizontal circle.



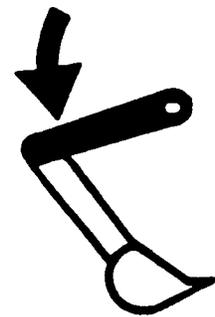
**MOVE LOAD IN HORIZONTALLY.** With either arm extended, hand raised and open toward direction of movement, move hand in direction of required movement.



**MOVE LOAD OUT HORIZONTALLY.** With either arm extended, hand raised and open toward direction of movement, move hand in direction of required movement.

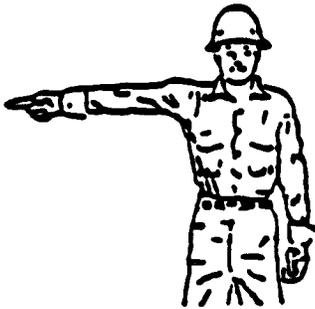


**RAISE BOOM.** With either arm extended horizontally, fingers closed, point thumb upward.

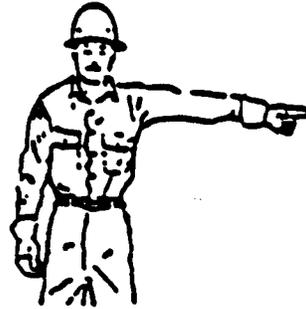


**LOWER BOOM.** With either arm extended horizontally, fingers closed, point thumb downward.

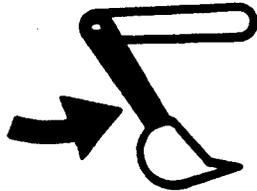
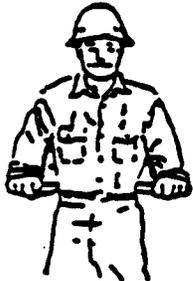
FIGURE 1—STANDARD HAND SIGNALS FOR CONTROLLING EXCAVATORS AND BACKHOES.



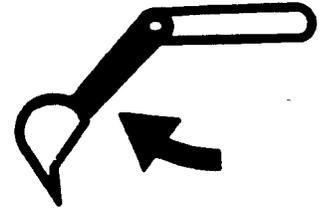
**SWING.** With either arm extended horizontally, point with forefinger to direction of swing rotation.



**SWING.** With either arm extended horizontally, point with forefinger to direction of swing rotation.



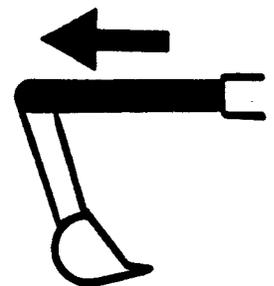
**ARM/DIPPERSTICK INWARD.** With both hands clenched, point thumbs inward.



**ARM/DIPPERSTICK OUTWARD.** With both hands clenched, point thumbs outward.



**RETRACT TELESCOPIC BOOM.** With both hands clenched, point thumbs inward.

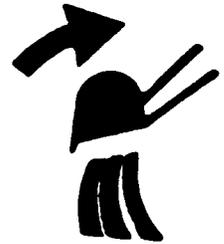


**EXTEND TELESCOPIC BOOM.** With both hands clenched, point thumbs outward.

FIG. 1 - STANDARD HAND SIGNALS FOR CONTROLLING EXCAVATORS AND BACKHOES (Cont.)



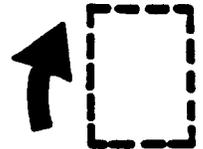
**CLOSE BUCKET.** Hold one hand closed and stationary. Rotate other hand in small vertical circle with forefinger pointing horizontally at closed hand.



**OPEN BUCKET.** Hold one hand open and stationary. Rotate other hand in small vertical circle with forefinger pointing horizontally at open hand.



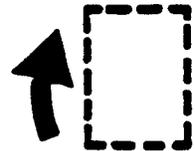
**TURN.** Raise forearm with closed fist indicating inside of turn. Move other fist in vertical circle indicating direction of track or wheel rotation.



**TURN.** Raise forearm with closed fist indicating inside of turn. Move other fist in vertical circle indicating direction of track or wheel rotation.



**COUNTER ROTATE.** Place hand on head indicating side or reverse track or wheel rotation. Move other hand in vertical circle indicating forward rotation of other track or wheel.



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FIG. 1 - STANDARD HAND SIGNALS FOR CONTROLLING EXCAVATORS AND BACKHOES (Cont.)



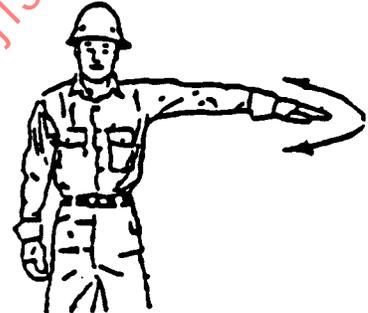
**TRAVEL.** Move fists in vertical circle about each other in direction of track or wheel rotation.



**THIS FAR TO GO.** With hands raised and open inward, move hands laterally, indicating distance to go.



**MOVE SLOWLY.** Place one hand motionless in front of hand giving motion signal. (Raise load slowly is shown.)



**STOP.** With either arm extended laterally, hand open downward, move arm back and forth.

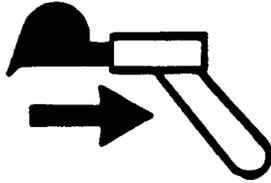


**EMERGENCY STOP.** With both arms extended laterally, hands open downward, wave arms back and forth.



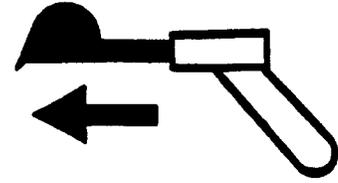
**STOP ENGINE.** Draw thumb or forefinger across throat.

FIG. 1 - STANDARD HAND SIGNALS FOR CONTROLLING EXCAVATORS AND BACKHOES (Cont.)



**RETRACT TELESCOPIC ARM/DIPPERSTICK.**

With either arm outstretched horizontally in front of body, close fingers and point thumb in direction of required movement.



**EXTEND TELESCOPIC ARM/DIPPERSTICK**

With either arm outstretched horizontally in front of body, close fingers and point thumb in direction of required movement.

FIG. 1 - STANDARD HAND SIGNALS FOR CONTROLLING EXCAVATORS AND BACKHOES (Cont.)

4. Notes

- 4.1 **Marginal Indicia**—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

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