W26
Articulated Loader

Operators Manual

9-2023

CASE
CONSTRUCTION

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PERCENTAGE OF EARTH SWELL

Payments for earth work are generally made on the basis of measurements of solid or compacted material. The terms "Pay Load" "Bank Measure", "Compact Measure", generally refer to quantity of earth as measured in the cut before it is loosened. Since loaders, scrapers and other pieces of equipment handle earth after it has been loosened, it is necessary to know the pay load hauled per trip.

The difference between the volume occupied by the material after it is loosened and that occupied in its original compact form is called the "Swell" and is expressed in terms of percentage of the original volume occupied. Thus, if a cubic yard of solid rock occupies 1-1/2 cubic yards of space after it has been blasted, we would say that the swell is .5 or 50 percent. The following table gives the generally accepted percentages of swell for different classes of material.

Percentage of Swell in Different Classes

MATERIAL	PERCENT OF SWELL
Clean Sand or Gravel	5 to 15
Top Soil	11 to 20
Loam	17-1/2
Good Common Earth	24 to 35
Clay with Sand or Gravel	30 to 45
Clay - Light and Friable	35 to 55
Clay- Hard and Tough	42 Hard Lump to 62 with rocks or roots.
Shale and Soft Rock	50 to 73
Hard Rock	56 Well blasted to 98 poorly blasted.

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APPROXIMATE WEIGHTS OF COMMON MATERIALS IN POUNDS PER CUBIC YARD

Ashes and Cinders	700 - 1200
Asphalt	2700
Average Crushed Stone	2300 - 2800
Clay	
Dry - Loose	1700 - 2300
Wet	2900
Clay and Gravel (dry)	2700
Coal (Broken)	
Anthracite	1400 - 1550
Bituminus	1300 - 1500
Coke	600 - 850
Concrete - Mix, wet	3500 - 3750
Common Earth	
Loose - Dry	1950 - 2150
Packed - Moist	2400 - 2700
Wet Packed	2950 - 3500
Gravel	
Dry	2700 - 3240
Wet	3200
Iron Ore (Broken)	3600 - 5500
Limestone (Broken)	2500 - 2700
Rock Salt	3650
Sand	
Dry - Loose	2400 - 2850
Moist - Loose	3250
Sand and Gravel	2800 - 3200

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FILLING-TRANSPORTING-DUMPING

also refer to page 40 for operating tips

1. Set the bottom of the bucket level or parallel to the ground. Use sight level gauge as a guide. Enter material with bucket just skimming top of ground. Don't have bucket tilted back.

2. Coordinate tilt and lift of bucket with forward movement of the loader so the bucket fills gradually as it "walks" its way up the bank or pile. Don't try to fill bucket completely at the bottom of the bank or pile.

3. Make loading or backing out easy by varying the foot accelerator to obtain the best crowding or reversing action. Keep bucket low when backing out and carrying. This provides the best stability particularly when backing up a ramp or incline.



4. The bucket should be carried as close to the ground as conditions permit to give the operator a clear view and provide maximum stability.

5. Keep the work cycle short by having the bucket in position to dump at the end of the transport run - this can be accomplished by taking a few minutes to "lay out the job", refer to Page 40 and 41.

6. Most material will flow easily out of the bucket when dumped. Sticky materials can be jarred out of the corners by having the bucket in full raise and rapidly moving the tilt lever back and forth to rap the bucket.

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