MONTANA
Department of Transportation

MDT-BRG-015 04/23

Montana Department of Transportation
Bridge Bureau
Approved Construction Equipment List

Make:	*Komatsu*
Model:	*HM350-2*
Equipment Type:	*Dump Truck*
Contractor Modifications:	*None*

Interstate Approval Conditions

Approval Type	*Crossing Only*
Speed:	*No Restriction*
Weight:	*68,500 lb or less*
Traffic:	*Approved with regular traffic*
Location Restrictions:	*Remain in painted lane*

Non-Interstate Approval Conditions

Approval Type	*Denied*
Speed:	*Denied*
Weight:	*Denied*
Traffic:	*Denied*
Location Restrictions:	*Denied*

Comments:

Equipment configuration, weights, and specifications on following pages. Approval does not apply to load posted bridges. Other construction equipment is not allowed to operate on or cross bridge at the same time this equipment is on the bridge. Equipment must be empty of additional load for crossing.

SPECIFICATIONS

ENGINE

Model . . . . . Komatsu SAA6D140E-5
Type . . . . . Water-cooled, 4-cycle
Aspiration . . . . . Turbo-charged, after-cooled, cooled EGR
Number of cylinders 6
Bore . . . . . 140 mm **5.51"**
Stroke . . . . . 165 mm **6.50"**
Piston displacement . . . . . 15.24 ltr **930 in³**
Horsepower
SAE J1995 . . . . . Gross 304 kW **408 HP**
ISO 9249 / SAE J1349 . . . . . Net 294 kW **394 HP**
Rated rpm . . . . . 2000 rpm
Fan drive type . . . . . Mechanical
Maximum torque . . . . . 203 kg•m **1,468 lb. ft** at 1400 rpm
Fuel system . . . . . Direct injection
Governor . . . . . Electronically controlled
Lubrication system
Method . . . . . Gear pump, force-lubrication
Filter . . . . . Full-flow type
Air cleaner . . . . . Dry type with double elements and precleaner (cyclopack type), plus dust indicator

EPA Tier 3 and EU stage 3A emissions certified.

TRANSMISSION

Torque converter 3-elements, 1-stage, 2-phase
Transmission . . . . . Full-automatic, counter-shaft type
Speed range . . . . . 6 speeds forward and 2 reverse
Lockup clutch . . . . . Wet, single-disk clutch
Forward . . . . . Torque converter drive in 1st gear, direct drive in 1st lockup and all higher gears
Reverse . . . . . Torque converter drive and direct drive in all gear
Shift control . . . . . Electronic shift control with automatic clutch modulation in all gear
Maximum travel speed . . . . . 57.1 km/h **35.5 mph**

AXLES

Full time all wheel drive with 100% differential lock in all axles.
Final drive type . . . . . Planetary gear
Ratios:
Differential 3.231
Planetary 4.941

SUSPENSION SYSTEM

Front . . . . . Hydro-pneumatic suspension
Rear . . . . . Combined hydro-pneumatic and rubber suspension system

STEERING SYSTEM

Type . . . . . Articulated type, fully hydraulic power steering with two double-acting cylinders
Supplementary steering . . . . . Automatically actuated, electrically powered
Minimum turning radius, wall to wall . . . . . 8.6 m **28'3"**
Articulation angle . . . . . 45° each direction

BRAKES

Service brakes . . . . . Full-hydraulic control, oil-cooled multiple-disc type on front and center axles
Parking brake . . . . . Spring applied, caliper disc type
Retarder . . . . . Front and center axle brakes act as retarder

MAIN FRAME

Type . . . . . Articulated type, box-sectioned construction on front and rear
Connected by strong torque tubes.

BODY

Capacity:
Struck . . . . . 14.6 m³ **19.1 yd³**
Heaped (2:1, SAE) . . . . . 19.8 m³ **25.9 yd³**
Payload . . . . . 32.3 metric tons **35.6 U.S. tons**
Material . . . . . 130 kg/mm² **185,000 psi** high tensile strength steel
Material thickness:
Bottom . . . . . 16 mm **0.63"**
Front . . . . . 8 mm **0.31"**
Sides . . . . . 12 mm **0.47"**
Target area
(inside length x width) . . . . . 5495 mm x 2935 mm **18'0" x 9'8"**
Heating . . . . . Exhaust heating (option)

HYDRAULIC SYSTEM

Hoist cylinder . . . . . Twin, 2-stage telescopic type
Relief pressure . . . . . 20.6 Mpa 210 kg/cm² **2,990 psi**
Hoist time . . . . . 12 sec

CAB

Dimensions comply with ISO 3471 and SAE J1040-1988c ROPS (Roll-Over Protective Structure) standards

WEIGHT (APPROXIMATE)

Empty weight . . . . . 31060 kg **68,500 lb**
Gross vehicle weight . . . . . 63440 kg **139,900 lb**
Weight distribution:
Empty: Front axle 57.4%
Center axle 21.6%
Rear axles 21.0%
Loaded: Front axle 31.8%
Center axle 34.2%
Rear axles 34.0%

TIRES

Standard tire 26.5 R25

SERVICE REFILL CAPACITIES

Fuel tank	493 ltr.	**130.3 U.S. Gal**
Engine oil	50 ltr.	**13.2 U.S. Gal**
Torque converter, transmission and retarder cooling	115 ltr.	**30.4 U.S. Gal**
Differentials (total)	82.5 ltr.	**21.8 U.S. Gal**
Final drives (total)	38 ltr.	**10.0 U.S. Gal**
Hydraulic system	180 ltr.	**47.6 U.S. Gal**
Suspension (total)	21.2 ltr.	**5.6 U.S. Gal**

SPECIFICATIONS

ENGINE

Model ..... Komatsu SAA6D140E-7*
Type ..... Water-cooled, 4-cycle
Aspiration ..... Variable geometry turbo-charged, after-cooled, cooled EGR
Number of cylinders 6
Bore ..... 140 mm **5.51"**
Stroke ..... 165 mm **6.50"**
Piston displacement ..... 15.24 ltr **930 in³**
Governor ..... All-speed, electronic
Horsepower:
SAE J1995 ..... Gross 266 kW **357 HP**
ISO 9249 / SAE J1349 ..... Net 263 kW **353 HP**
Rated rpm ..... 1900 rpm
Fan drive method for radiator cooling ..... Hydraulic
Fuel system ..... Direct injection
Lubrication system:
Method ..... Gear pump, force-lubrication
Filter ..... Full-flow type
Air cleaner ..... Dry type with double elements and dust evacuator, plus dust indicator

*EPA Tier 4 Final emissions certified

TRANSMISSION

Torque converter ..... three-elements, one-stage, two-phase
Transmission ..... Full-powershift, planetary type

Travel speed	Forward*	Reverse*
1st	7.5 km/h **4.7 mph**	8.5 km/h **5.3 mph**
2nd	12.9 km/h **8.0 mph** (13.1 km/h **8.1 mph**)	12.9 km/h **8.0 mph** (13.0 km/h **8.1 mph**)
3rd	22.2 km/h **13.8 mph** (23.7 km/h **14.7 mph**)	24.7 km/h **15.3 mph** (26.6 km/h **16.5 mph**)
4th	35.5 km/h **22.1 mph** (37.3 km/h **23.2 mph**)	38.0 km/h **23.6 mph** (38.0 km/h **23.6 mph**)

*P-mode Measured with 29.5-25 tires ( ): Lock-up clutch ON

AXLES AND FINAL DRIVES

Drive system ..... Four-wheel drive
Front ..... Fixed, full-floating
Rear ..... Center-pin support, full-floating, 20° total oscillation
Reduction gear ..... Spiral bevel gear
Differential gear ..... Conventional type
Final reduction gear ..... Planetary gear, single reduction

BRAKES

Service brakes ..... Hydraulically actuated, wet disc brakes actuate on four wheels
Parking brake ..... Wet disc brake
Emergency brake ..... Parking brake is commonly used

STEERING SYSTEM

Type ..... Articulated type, fully-hydraulic power steering
Steering angle ..... 36° (40° to max end stop)
Minimum turning radius at the center of outside tire ..... 7050 mm **23' 2"**

HYDRAULIC SYSTEM

Steering system:
Hydraulic pump ..... Piston type
Capacity ..... 120 ltr/min **31.7 U.S. gal/min** at rated rpm
Relief valve setting ..... 24.5 MPa 250 kgf/cm² **3,555 psi**
Hydraulic cylinders:
Type ..... Double-acting, piston type
Number of cylinders 2
Bore x stroke ..... 100 mm x 486 mm **3.9" x 19.1"**

Loader control:
Hydraulic pump ..... Piston pump
Capacity ..... 320 ltr/min **84.8 U.S gal/min** at rated rpm
Relief valve setting ..... 34.3 MPa 350 kgf/cm² **4,980 psi**
Hydraulic cylinders:
Type ..... Double-acting, piston type
Number of cylinders—bore x stroke:
Boom cylinder ..... 2- 160 mm x 898 mm **6.3" x 35.4"**
Bucket cylinder ..... 1- 185 mm x 675 mm **7.3" x 26.6"**
Control valve ..... 2-spool type
Control positions:
Boom ..... Raise, hold, lower, and float
Bucket ..... Tilt-back, hold, and dump
Hydraulic cycle time (rated load in bucket)
Raise ..... 7.2 s
Dump ..... 1.7 s
Lower (Empty) ..... 4.2 s

SERVICE REFILL CAPACITIES

Cooling system	110 ltr	**29.1 U.S. gal**
Fuel tank	473 ltr	**124.9 U.S. gal**
Engine	37 ltr	**9.8 U.S. gal**
Hydraulic system	337 ltr	**89.0 U.S. gal**
Axle (each front and rear)	95 ltr	**25.1 U.S. gal**
Torque converter and transmission	71 ltr	**18.8 U.S. gal**
DEF tank	36 ltr	**9.5 U.S. gal**

BUCKET SELECTION GUIDE

