

## Montana Department of Transportation Bridge Bureau Approved Construction Equipment List

<b>Make:</b>	<i>Komatsu</i>
<b>Model:</b>	<i>HM350-2</i>
<b>Equipment Type:</b>	<i>Dump Truck</i>
<b>Contractor Modifications:</b>	<i>None</i>

### Interstate Approval Conditions

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

### Non-Interstate Approval Conditions

<i>Approval Type</i>	<i>Denied</i>
<i>Speed:</i>	<i>Denied</i>
<i>Weight:</i>	<i>Denied</i>
<i>Traffic:</i>	<i>Denied</i>
<i>Location Restrictions:</i>	<i>Denied</i>

**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 in<sup>3</sup>**  
 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 m<sup>3</sup> **19.1 yd<sup>3</sup>**  
     Heaped (2:1, SAE) . . . . . 19.8 m<sup>3</sup> **25.9 yd<sup>3</sup>**  
 Payload . . . . . 32.3 metric tons **35.6 U.S. tons**  
 Material . . . . . 130 kg/mm<sup>2</sup> **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/cm<sup>2</sup> **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 in<sup>3</sup>**  
 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 <b>4.7 mph</b>	8.5 km/h <b>5.3 mph</b>
2nd	12.9 km/h <b>8.0 mph</b> (13.1 km/h <b>8.1 mph</b> )	12.9 km/h <b>8.0 mph</b> (13.0 km/h <b>8.1 mph</b> )
3rd	22.2 km/h <b>13.8 mph</b> (23.7 km/h <b>14.7 mph</b> )	24.7 km/h <b>15.3 mph</b> (26.6 km/h <b>16.5 mph</b> )
4th	35.5 km/h <b>22.1 mph</b> (37.3 km/h <b>23.2 mph</b> )	38.0 km/h <b>23.6 mph</b> (38.0 km/h <b>23.6 mph</b> )

\*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/cm<sup>2</sup> **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/cm<sup>2</sup> **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

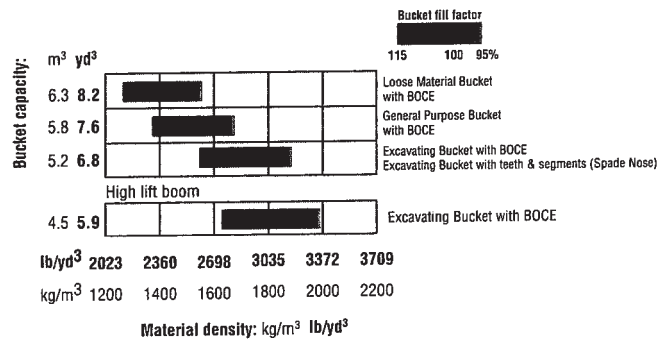


## SERVICE REFILL CAPACITIES

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



WA500-8