
OPERATOR MAINTENANCE EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

EQUIPMENT CHARACTERISTICS

The HET Tractor is used in combination with the M1000 Trailer to form the Heavy Equipment Transport System (HETS). The HETS is used to load, unload, and transport the M1 Series Main Battle Tank (MBT) and other heavy tracked/wheeled vehicles weighing up to 140,000 lbs (63 560 kg) during administrative and tactical operations.

EQUIPMENT CAPABILITIES

1. Operates in temperatures from -25 to 120°F (-32 to 49°C) in normal configuration (arctic kit not installed) and -50°F to 120°F (-46°C to 49°C) with arctic kit installed.
2. Fords water up to 28 in. (71 cm) deep for 5 minutes without damage or requiring maintenance before operation can continue.
3. Normal operating range is 325 mi (523 km), based on 250 gal. (946 L) of fuel and 231,400 lbs (105 056 kg) gross combination weight rating (GCWR) when operated at an average speed of 30 mph (48 km/h). Varying loads, prolonged idle, use of Power Takeoff (PTO), off-road driving, and climatic conditions affect operating range.
4. Tiedown points are located so HET Tractor can be restrained in all directions during air transport in C-5A and C-17 aircraft. HET Tractor is also capable of being transported by highway, rail, and sea.

EQUIPMENT FEATURES

1. Eight-cylinder, 736 cu in. (12.1 L), V-type, 2-cycle, turbocharged diesel engine.
2. Automatic transmission with one reverse speed and five forward speeds.
3. Operator-controlled 6-wheel/8-wheel drive with high and low range transfer case for positive traction on unimproved road surfaces.
4. Power steering system consists of basic manual steering system with hydraulic boost. An auxiliary steering pump provides hydraulic boost in the event of main pump failure. Mechanical linkage also provides operator control in event of hydraulic oil pressure loss.
5. Fuel system includes two fuel tanks, injectors, pipes (inlet and outlet), manifolds (integral with the cylinder head), pump, fuel/water separator, secondary filter, and fuel lines.
6. Two front and two rear towing eyes.
7. Manual-release pintle hook which will allow towing of trailer.
8. Two main winches, each having 55,000 lbs (24 970 kg) capacity, used for recovering, loading, and unloading heavy tracked/wheeled vehicles. Auxiliary

EQUIPMENT FEATURES - Continued

- winch having 3,000 lbs (1 361 kg) capacity used for pulling main winch cable back to payload.
9. Central Tire Inflation System (CTIS) allows operator to automatically adjust tire pressure to suit terrain conditions.
 10. Personnel cab has accommodations for two personnel in front seats and three personnel in rear seat. Rear seat converts into beds which sleep two personnel.
 11. Heavy duty, full oscillating fifth wheel accommodates M1000 trailer or any other trailer with 3-1/2 in. kingpin.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
EQUIPMENT DATA**

Table 1. Vehicle Dimensions.

Width (vehicle): 102 in. (2 591 mm)
Width (mirrors extended): 144 in. (3 658 mm)
Height (overall): 140.1 in. (3 559 mm)
Length (overall): 361.6 in. (9 185 mm)
Wheelbase: 215 in. (5 461 mm)
Track: 82 in. (2 083 mm)
5th Wheel Height: 64 in. (1 626 mm)
Kingpin Diameter: 3.5 in. (89 mm)
Ground Clearance: 15.9 in. (404 mm)

Table 2. Weights and Payloads.

HET Tractor Curb Weight: 38,910 lbs (17 665 kg)
Gross Vehicle Weight Rating (GVWR): 86,000 lbs (39 044 kg)
Gross Combination Weight Rating (GCWR): 231,400 lbs (105 056 kg)
Kingpin Load: 46,000 lbs (20 884 kg)

Table 3. Weight Distribution.

Axle Loads of HET Tractor (Curb Weight)
No. 1 Axle: 17,620 lbs (7 999 kg)

Table 3. Weight Distribution. - Continued

No. 2 Axle: 7,219 lbs (3 277 kg)
No. 3 Axle: 7,050 lbs (3 201 kg)
No. 4 Axle: 7,030 lbs (3 192 kg)
Axle Loads of HET Tractor (Gross Vehicle Weight)
No. 1 Axle: 20,122 lbs (9 135 kg)
No. 2 Axle: 22,022 lbs (9 998 kg)
No. 3 Axle: 21,982 lbs (9 980 kg)
No. 4 Axle: 21,874 lbs (9 931 kg)

Table 4. Vehicle Performance.

Cruising Range at GCWR: 325 mi. (523 km)
Maximum Sustained Forward Speed (at 2100 rpm) - 5th Gear: 45 mph (72 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 4th Gear: 32 mph (51 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 3rd Gear: 22 mph (35 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 2nd Gear: 14 mph (23 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 1st Gear: 9 mph (14 km/h)
Maximum Grade at GCWR: 15 percent
Maximum Grade w/50,000 lbs (22 700 kg) Payload: 30 percent
Maximum Side Slope at GCWR: 20 percent
Maximum Towed Speed (refer to FM 4-30.31): 5 mph (8 km/h)
Maximum Ford Depth: 28 in. (711 mm)
Approach Angle: 30 degrees

Table 4. Vehicle Performance. - Continued

Turning Radius (HET Tractor Only): 67.9 ft. (20.7 m)
Turning Radius (HET System = HET Tractor + M1000 Trailer): 78.8 to 81 ft. (24.03 to 24.7 m)

Table 5. Fluid Capacities.

Refer to lubrication instructions (WP 0106) in operator's PMCS for vehicle fluid capacities.
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Table 6. Engine.

Make: Detroit Diesel Corporation
Model: 8V92TA DDEC II or III/IV
Type: 2-Stroke, V-Type Diesel, Turbocharged, Aftercooled
Cylinders: 8
Bore: 4.84 in. (123 mm)
Stroke: 5 in. (127 mm)
Displacement: 736 cid (12.1 L)
Torque (at 2100 rpm): 1470 lb-ft (1 993 N·m)
Maximum Brake Horsepower (at 2100 rpm): 500 BHP (373 kW)
Maximum Governed Engine Speed (Loaded): 2050 - 2150 rpm
Oil Filter Type: Full Flow, Replaceable Element
Oil Filter Quantity: 1

Table 7. Fuel System.

Type: Electronic Diesel Injection
Tank Quantity: 2

Table 7. Fuel System. - Continued

Air Cleaner Type: Dry element

Table 8. Cooling System.

Radiator Working Pressure: 10 psi (68.95 kPa)
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Table 9. Air Compressor.

Make: Midland

Model: EL 3200

Type: Four-Cylinder, Piston-Type

Table 10. Electrical System.

Alternators (2)

Make: Prestolite

Model: 4805JX (14 VDC) and 4826JX (28 VDC)

Drive Type: Belt

Voltage Regulator: Integral

Dual Voltage System: Separate Alternators Common at Batteries
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Starter

Make: Leece Neville

Model: 24 VDC per MIL-S-3785 (series) (WP 0113), Type II, Grade A
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Rating: 680 Amps, 50 lb-ft (68 N·m) at 18.7 VDC
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Batteries

Make: Exide

Type: 6TL

Table 10. Electrical System. - Continued

Number of Batteries: 4 (additional two batteries if Swingfire arctic heater kit is installed)
Battery Connection: Series - parallel
Battery Capacity (at 20 hour rate): 900 amp
Rating: 600 Cold Cranking Amps at 0°F (-18°C) for 60 seconds

Table 11. Transmission.

Make: Allison
Model: CLT 754
Type: Automatic
Number of Forward Speeds: 5
Number of Reverse Speeds: 1

Table 12. Power Takeoff.

Make: Chelsea/Dana
Model: 270 series

Table 13. Transfer Case.

Make: Oshkosh
Model: 55000 Series
Type: 2-Speed, Helical Gear

Table 14. No. 1 Axle.

Make: Rockwell
Model: SVI 5 MRDIS-FC
Type: Planetary Hub Reduction

Table 14. No. 1 Axle. - Continued

Ratio: 7.36:1
Type: 21,500 lbs (9 761 kg)
Steering Angle: 36 degrees (both left and right)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 15. No. 2 Axle.

Make: Rockwell
Model: SVI 5 MRTGS-FC
Type: Planetary Hub Reduction
Ratio: 7.36:1
Type: 23,680 lbs (10 751 kg)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 16. No. 3 Axle.

Make: Rockwell
Model: SVI 5 MRTGS-FC
Type: Planetary Hub Reduction

Table 16. No. 3 Axle. - Continued

Ratio: 7.36:1
Type: 23,680 lbs (10 751 kg)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 17. No. 4 Axle.

Make: Rockwell
Model: SVI 5 MRDIS-FC
Type: Planetary Hub Reduction
Ratio: 7.36:1
Type: 23,680 lbs (10 751 kg)
Steering Angle: 19 degrees (both left and right)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 18. Propeller Shafts.

Make: Spicer
Model (Transmission to Transfer Case): 1810
Model (Transfer Case to Axle No. 1): 1610

Table 18. Propeller Shafts. - Continued

Model (Transfer Case to Axle No. 2): 1810
Model (No. 2 Axle to No. 3 Axle): 1710
Model (No. 3 Axle to No. 4 Axle): 1610

Table 19. Suspension System.

Front
Make: Hendrickson/Canada
Type: Taper leaf
Rear
Make: Hendrickson/Turner
Type: Air Ride

Table 20. Brake System.

Make: Rockwell
Model: 16.5 in. Q-Series
Type: S-Cam. Air Actuated
Drum Size: 16.5 in. (419 mm) diameter X 7.9 in. (201 mm) wide
FMVSS Certification: Yes
Brake Air Chambers: 8
Pressure Range: 60-120 psi (414-827 kPa)

Table 21. Hydraulic System.

Operating Pressure: 3,000 psi (20 685 kPa)
Overload Protection: Yes

Table 22. Cab.

Windshield: Tinted, two-piece, safety glass
Personnel Capacity: 5
Sleeping Capacity: 2

Table 23. Towing Eyes.

Quantity: 4 (2 front, 2 rear)
Maximum Load Capacity Each: 28,000 lbs (12 712 kg)

Table 24. Pintle Hook.

Type: Manual Release
Maximum Load Capacity - Pulling: 49,000 lbs (22 246 kg)
Maximum Load Capacity - Vertical: 9,800 lbs (4 449 kg)

Table 25. Recovery Winches (2).

Make: DP Manufacturing
Model: 55K
Speeds: 2
Maximum Load (per winch): 55,000 lbs (24 970 kg)
Cable Dimensions: 1 in. (25 mm) diameter X 170 ft. (51.8 m) length

Table 26. Auxiliary Winch.

Make: DP Manufacturing
Model: 3GN
Speeds: 1
Maximum Load (per winch): 3,000 lbs (1 362 kg)

Table 26. Auxiliary Winch. - Continued

Cable Dimensions: .25 in. (6.4 mm) diameter X 300 ft. (91.5 m) length
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Table 27. Wheels.

Make: Titan
Rim Size: 20 x 10
Type: Two-piece bolt together wheel
Quantity: 9 (including spare)
Stud Quantity Per Wheel: 10
Maximum Wheel Load: 12,500 lbs (5 675 kg)

Table 28. Central Tire Inflation System (CTIS).

Make: CM Automotive

Table 29. Tires.

Make: Michelin
Size: 425/95 R20 (16.00 R20)
Tread Design: Non-Directional, On-Off Road
Ply Rating: 22 Ply
Type: Tubeless/Radial
Load Range: M
Per Tire Load (HET Tractor Unloaded)
Front: 9,184 lbs (4 170 kg)
Rear: 3,772 lbs (1 712 kg)
Per Tire Load (HET Tractor at GVWR)

Table 29. Tires. - Continued

Front: 10,282 lbs (4 668 kg)
Rear: 11,073 lbs (5 027 kg)

Table 30. Auxiliary Equipment.

Arctic Engine Heater Kit (Swingfire or M12 EMI)
Chemical Alarm Kit
Decontamination Apparatus Portable (DAP) Kit
Gas Particulate Filter Unit
Radio
Note: HET Tractor may or may not be equipped with any of these items depending on mission, climate, or other factors.

Table 31. Load Classification Chart.

Configuration	MLC
M1070 HET Tractor without Trailer	19
M1070 HET Tractor with M1000 Trailer	30
M1070 HET Tractor with M1000 Trailer and M1 Tank	95

Table 32. Tire Pressure (All Tires).

Terrain Condition	Maximum Speed	Tire Pressure
Highway	45 mph (72 km/h)	75 psi (517 kPa)
Crosscountry	30 mph (48 km/h)	55 psi (379 kPa)
Mud, Sand, Snow	15 mph (24 km/h)	40 psi (276 kPa)