



Empire Tractor Owners Club

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EMPIRE TRACTOR MODEL 88 SPECIFICATIONS

Model 88 Tractors: The Model 88 tractor used military war surplus rebuilt engines with the T-84 Warner Gear transmission. Some late model 88 tractors used the improved T-90 Warner Gear transmission. A Spicer transfer case and two lever PTO control were used.

Tractor Type: General purpose, light farm, two 12" bottom plow capacity

Model 88 Production: 3,000 Serial #0001 - #3000 (estimated)

The brass ID tag is located under the dash on the right side of the firewall of the tractor. This tag will show the serial number, model number, manufacturing date and engine number of the tractor. The engine serial number on this brass data tag should match the serial number on the engine if the original motor is still in the tractor. This engine number is located on the front right side of the engine block in back of the oil filter.

Production Dates: October 1946 through August 1947 (estimated dates)

The first shipments of 46 Empire tractors went to South Africa and were believed to be all Model 88. The balance of the Model 88 tractors were shipped to Argentina and possibly a few went to the U.S. Treasury Dept. under the United Nations Relief and Rehabilitation Program. To date (2014), only two Model Empire tractors have been found in North America: Serial #4 imported back to the USA from South Africa, and Serial #2933 now in Vermont.

Model 88 Empire Tractor

Color: Red was the color as they came from the factory. Model 88 tractor engines, transmissions, transfer cases and PTO units were painted gray, the color used by the Army rebuild shops during World War II.

Original Equipment: Toolbox, front headlights, one rear fender light, rear belt pulley, Equa-Pull drawbar, amp gauge, temperature gauge, oil pressure gauge, governor, oil filter.

Frame: Fabricated and welded channel iron with cross supports and heavy steel cross plate used to support rear end and chain reduction units. Early Model 88 tractors had bolted together frames.

Deck: Steel grating with 1-3/16" x 4" opening using 1" x 1/8" thick steel. Sides were reinforced with 1" x 1" x 1/8" angle welded to grating. It's believed this grating was left over war surplus decking as used on Navy ships.



Drawbar: Patent pending *Equa-Pull* drawbar attached to a 2 1/2" x 2 1/2" x 1/4" thick square tube running across width, under the center of the tractor. This tube was held in place by "V" braces bolted or welded to each side of the main frame. The bar is adjustable to left and right and is 18 1/2" above ground. The bar is 2 1/2" wide x 5/8" thick x 71" long with a 1" diameter hole in each end. The drawbar has a safety anti-lift bar welded to the underside at the back of the tractor.

Optional Equipment: Rear wheel weights.

Engine: Willys-Overland & some Ford, military rebuilt war surplus - 4 cylinder

Bore & Stroke: 3 1/8 x 4 3/8
Displacement: 134.6 cu. in.
Governed Speed: 2000 RPM
Oil filter: Replaceable cartridge type – larger military type
Ignition: Direct driven distributor, automatic spark advance
Generator: Autolite Belt drive, 6 volt, 35 amp with regulator. Had military quick-release bracket.
Starter: Autolite Conventional type, 6 volt
Battery: 6 Volt, 100-amp hour capacity. Located under the hood on right rear side of engine.
Cooling: 16-quart capacity, 4-blade 16" fan belt driven
Carburetor: Carter W-O down draft
Air Cleaner: Oil bath with removable dust receptacle. Located in back of the firewall under the dash to left of steering column. Flex hose, 1-1/2" went from air cleaner to carburetor horn.

Capacities:

Cooling system:	11 US quarts	
Transmission:	3 US pints	SAE #90
Transfer Case	3 US pints	SAE #90
Differential	2 -3/4 US pints	SAE #90
Engine:	4 US quarts	SAE # 20 or # 30
Fuel tank: Early Model 88	Surplus Jeep MB tanks, 15 Gallon. Fabricated tanks used on others, capacity unknown	
Fuel tank: Late Model 88	Rectangular galvanized steel, 7-1/8 gallon.	
Final drive chain case:	3 US pints	SAE #140
Air cleaner:	1-1/4 pints	
Steering Gear:	6 ounces	SAE # 140

Governor: Variable speed, Novi. Mechanically operated centrifugal type. Regulation from 400 to 2000 RPM

Horsepower: 40 maximum belt @ 2000 RPM, 25 Drawbar HP

Transmission: War surplus Warner Gear T-84 3 speed forward, 1 reverse. Some late Model 88 tractors used the Newer T-90 transmission.

Transfer case: War surplus Spicer Model 18. 2:46 to 1 low range & 1 to 1 high range

Differential: War surplus Spicer model 23, Conventional hypoid auto type, 4:88-1 ratio. Front drive units from the Jeep with 1-1/4" drive shafts were used.

Clutch: Single dry disc plate, 8 1/2"

Fuel tank: Early Model 88 Located on the deck to the right of the tractor seat. Surplus MB Jeep gas tanks were used on early tractors, fabricated tanks on later units.
Late Model 88 Rectangular galvanized steel located under the deck in back of seat. 10-3/4 x 14-1/2 x 9- 1/2 high with 2-3/8" cap.

Muffler: War surplus Willys #WO-A9090A Reverse O flow type. Oval shape 18" long, 3-1/8" deep, 6" wide with 1-5/8" ID intake. Willys #WO-A6118 also was used.

Final Drive: Roller chain, double wide in sealed case. Oil bath lubrication. Small gear – double wide 9 teeth, large gear – double wide 24 teeth, chain – double wide 30 links #80-H roller. (2.67:1 reduction) It is not known when the change to single wide sprockets and chain was made.

Steering: Solid axle type with center pivot, drag link and tie rods. Tractor used war surplus Jeep gear box and three spoke steering wheel.

Power Take-off: War surplus, two lever control for V belt pulley & rear belt pulley. This PTO was used during World War II on Ford built amphibious Jeep vehicles.

Belt pulley: Steel 6” wide x 7-1/2” diameter with 1” diameter keyed bore. A split type pulley was also used.

Brakes: Individual clutch type with tie latch. Disc pads are 3/16” thick x 6" OD x 3-1/8" ID with 12 rivets.

Wheels: Rear: 24" x 8" rim with 1/2” steel plate welded in center. 8 bolt on 6” C/L
Front: 16" x 4" riveted in place center, 6 bolt on 5” C/L. Some early model 88 tractors used a welded plate center with four or five bolts.

Tires: Rear: 9:24 farm tractor type
Front: 5:50-16 single rib farm tractor type

Dimensions:

Wheel Base:	76-1/2"	Ground Clearance:	23"
Height above ground:	65"	Shipping weight:	2,450 lbs
Max. Tread:	58"	Minimum Tread:	50"
Overall length:	110"	Width:	61"

Draw Bar: Steel flat iron 2 1/2” wide x 5/8” thick x 71” long with 1” diameter hole in each end. The drawbar has a safety anti-lift bar welded to the underside at the back of the tractor.

Travel Speeds: Low range @ 1200 RPM 1st-2.31 MPH, 2nd-3.63 MPH, 3rd-5.80 MPH, Rev.-1.66 MPH
High range @ 1200 RPM 1st-4.46 MPH, 2nd-7.20 MPH, 3rd-11.00 MPH, Rev.-3.60 MPH
Highway speeds to 22.5 MPH @ 2200 RPM

Electrical:

Battery: 6 Volt, 100 amp. Located under the hood on right rear side of motor.

Ground cable: Negative ground, braided strap or rubber covered round type, straight post connector, length ___?__ .

Positive cable: Battery to starter switch, cloth covered round cable, eyelet & right angle connectors. Length ___?__

Starter cable: Starter to starter switch, cloth covered round cable, eyelet both ends. Length ___?__

Tool Box: Fabricated steel 30” long X 15” wide X 12” high with hinged cover, lock latch and carry handles. Other sizes were also used and some may have been war surplus.

Seat: Most model 88 tractors used a factory made seat that was adjustable up and down and front to back mounted to a spring steel plate The Monroe E-Z Ride along with other brands were used on late models depending on availability.

NOTE: To the best of our knowledge, the above specifications were correct at time of publication.(August 2014) Since then new information may have surfaced which may make certain information listed above incorrect. We would welcome any new information, additions or corrections.

