

Service Manual

HP
22-25

MFGC

Series Sub-Compact Tractor

Models: GC1705 / GC1710 / GC1715 / GC1720



VISION INNOVATION LEADERSHIP QUALITY RELIABILITY SUPPORT PRIDE COMMITMENT



MASSEY FERGUSON

GC1705 / GC1710 / GC1715 / GC1720

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1. Introduction

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1.1 Introduction

1.1.1 This manual

This manual covers general safety practices for this machine. The operator manual must always be kept with the machine.

Right-hand and left-hand, as used in this manual, are determined by facing the direction the machine will travel when in use.

The photos, illustrations, and data used in this manual were current at the time of printing, but due to possible in-line production changes, your machine can vary slightly in detail. The manufacturer reserves the right to redesign and change the machine as necessary without notification.



WARNING:

In some of the illustrations and photos used in this manual, shields or guards may have been removed for clarity. Never operate the machine with any shields or guards removed. If the removal of shields or guards is necessary to make a repair, they must be replaced before operation.

1.1.2 Units of measurement

Measurements are given in metric units followed by the equivalent in US units. Hardware sizes are given in millimeters for metric hardware and inches for US hardware.

1.1.3 Serial number plate

The serial number plate (1) is located below the operator seat on the left-hand side of the fender.

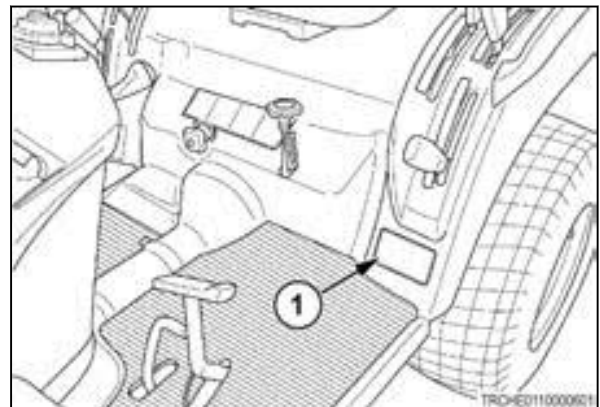


Fig. 1

The serial number plate contains the model number and serial number.

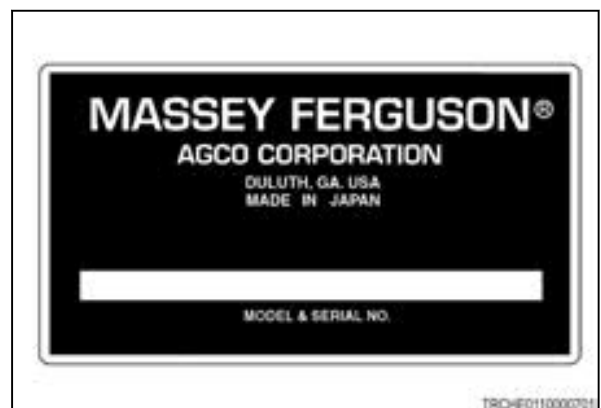


Fig. 2

1.1.4 Chassis number

The chassis number (1) is stamped in right-hand side of front frame.

| | |
|-----------------|--|
| Chassis number: | |
|-----------------|--|

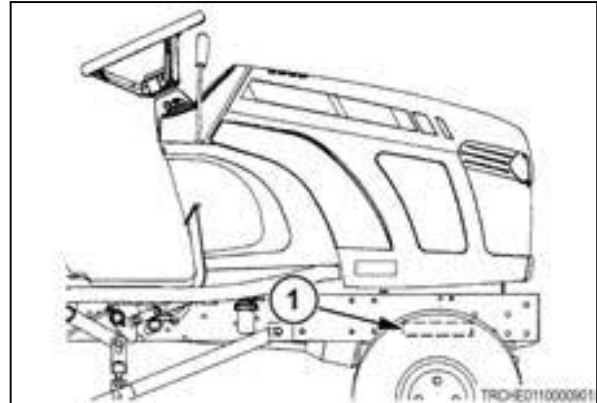


Fig. 3

1.1.5 Engine identification

The engine model number (1) is cast on the right-hand side of the engine block, below the injection pump.

The engine serial number (2) is stamped into the cylinder block, below the engine model number.

| | |
|-----------------------|--|
| Engine model number: | |
| Engine serial number: | |

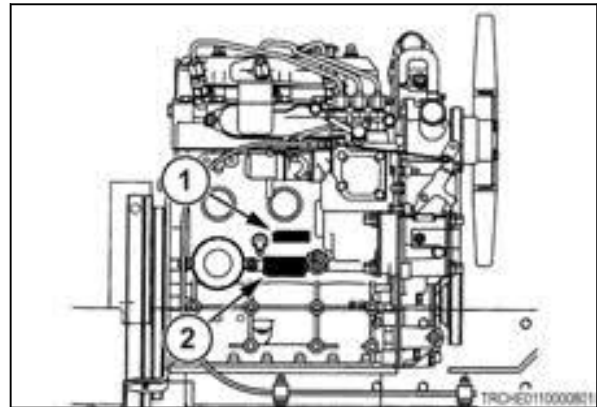


Fig. 4

1.2 Specifications

1.2.1 Engine specifications

Type Indirect injection, overhead valve diesel

Make Iseki

Model

GC1705 / GC1710 E3112-XB01

GC1715 / GC1720 E3112-XB

Number of cylinders 3

Aspiration Natural

Compression ratio 22.5 to 1

Injection Indirect

Bore 78.2 mm (3.08 in)

Stroke 78.0 mm (3.07 in)

Displacement 1123 cc (68.5 cu in)

Low idle speed 1250 to 1300 rpm

High idle speed

GC1705 / GC1710 2760 to 2860 rpm

GC1715 / GC1720 3170 to 3270 rpm

Engine horsepower (gross estimate)

GC1705 / GC1710 16.8 kW (22.5 hp) at 2600 rpm

GC1715 / GC1720 18.3 kW (24.5 hp) at 3000 rpm

Engine horsepower (net estimate)

GC1705 / GC1710 16.1 kW (21.6 hp) at 2600 rpm

GC1715 / GC1720 17.6 kW (23.9 hp) at 3000 rpm

PTO horsepower (estimate)

GC1705 / GC1710 13.6 kW (18.3 hp) at 540 PTO rpm

13.9 kW (18.7 hp) at 555 PTO rpm

GC1715 / GC1720 13.8 kW (18.5 hp) at 540 PTO rpm

14.6 kW (19.61 hp) at 572 PTO rpm

Engine cooling Liquid, forced circulation

Air cleaner Single stage, dry element

Cold starting aid Glow plugs (3)

Firing order 1-3-2

Valve Clearance (Cold)

Intake 0.25 mm (0.010 in)

Exhaust 0.25 mm (0.010 in)

1.2.2 Transmission specifications

Type Hydrostatic

Primary transmission Infinite

| | |
|--------------------------|---------------------------------------|
| Range transmission | 2-speed constant mesh |
| Gear speeds | 2 forward, 2 reverse |
| Clutch | None |
| Brakes | Mechanically actuated sealed wet disk |

1.2.3 Power takeoff specifications

| | |
|---------------|--|
| Type | Independent, engine driven |
| Control | Hydraulic control |
| Clutch | Mechanically engaged, multi-plate wet disk |

Rear PTO shaft

| | |
|--|---------------------------------------|
| Type | 35 mm (1.375 in) diameter, six spline |
| Output | Clockwise rotation |
| Engine speed at 540 PTO rpm - GC1705 / GC1710 | 2532 rpm |
| Engine speed at 540 PTO rpm - GC1715 / GC1720 | 2829 rpm |

Mid PTO shaft

| | |
|---|-------------------------------------|
| Type | 25.4 mm (1 in) diameter, six spline |
| Output | Clockwise rotation |
| Engine speed at 2000 PTO rpm - GC1705 / GC1710 | 2476 rpm |
| Engine speed at 2000 PTO rpm - GC1715 / GC1720 | 2947 rpm |

1.2.4 Hydraulic specifications

Main hydraulic system

| | |
|--|--|
| Pump | Transmission mounted gear pump |
| Maximum output - GC1705 / GC1710 | 24.0 liter/min (6.3 US gal/min) |
| Maximum output - GC1715 / GC1720 | 26.3 liter/min (6.9 US gal/min) |
| Pressure | Relief valve setting 13 244 kPa (1920 psi) |

Steering system

| | |
|-----------------------------|--|
| Type | Hydrostatic |
| Pump | Transmission mounted gear pump with flow divider |
| Maximum output | 7.5 liter/min (2.0 US gal/min) |
| Pressure relief valve | 8339 kPa (1209 psi) |

Rear linkage

| | |
|---------------------|--|
| Type | Three-point hitch |
| Size | Category 1 |
| Control | Lift control |
| Lift capacity | 540 kg (1191 lb) measured at ball ends |

1.2.5 Electrical specifications

| | |
|---|----------|
| System voltage | 12 volt |
| Grounding | Negative |
| Battery cold cranking amperes (cca) @ - 18 degrees C (0 degrees F) | 433 cca |

Battery case dimensions

| | |
|-----------------------|--|
| Length | 238 mm (9-3/8 in) |
| Width | 129 mm (5 in) |
| Height | 203 mm (8 in) |
| Charging system | 40 ampere alternator with internal regulator/ rectifier |

1.2.6 Capacities

| | |
|---|------------------------|
| Engine crankcase with filter | 2.6 liters (2.7 US qt) |
| Transmission and differential housing (including hydraulic system) | 11 liters (2.9 US gal) |
| Fuel tank | 25 liters (6.6 US gal) |
| Cooling system | 4.6 liters (4.9 US qt) |
| Front drive axle | 4.0 liters (4.2 US qt) |

1.2.7 Tread width

Front tread width settings

| | |
|---|------------------|
| Agricultural tires (dished in only) | 930 mm (36.6 in) |
| Turf tires (dished in only) | 930 mm (36.6 in) |

Rear tread width settings

| | |
|---|------------------|
| Agricultural tires (dished in only) | 840 mm (33.1 in) |
| Turf tires (dished in only) | 840 mm (33.1 in) |

1.2.8 Maximum axle capacity

| | |
|-------------------------------------|-------------------|
| Front axle | 880 kg (1940 lb) |
| Rear Axle | 950 kg (2094 lb) |
| Maximum tractor mass (weight) | 1220 kg (2690 lb) |

1.2.9 Dimensions

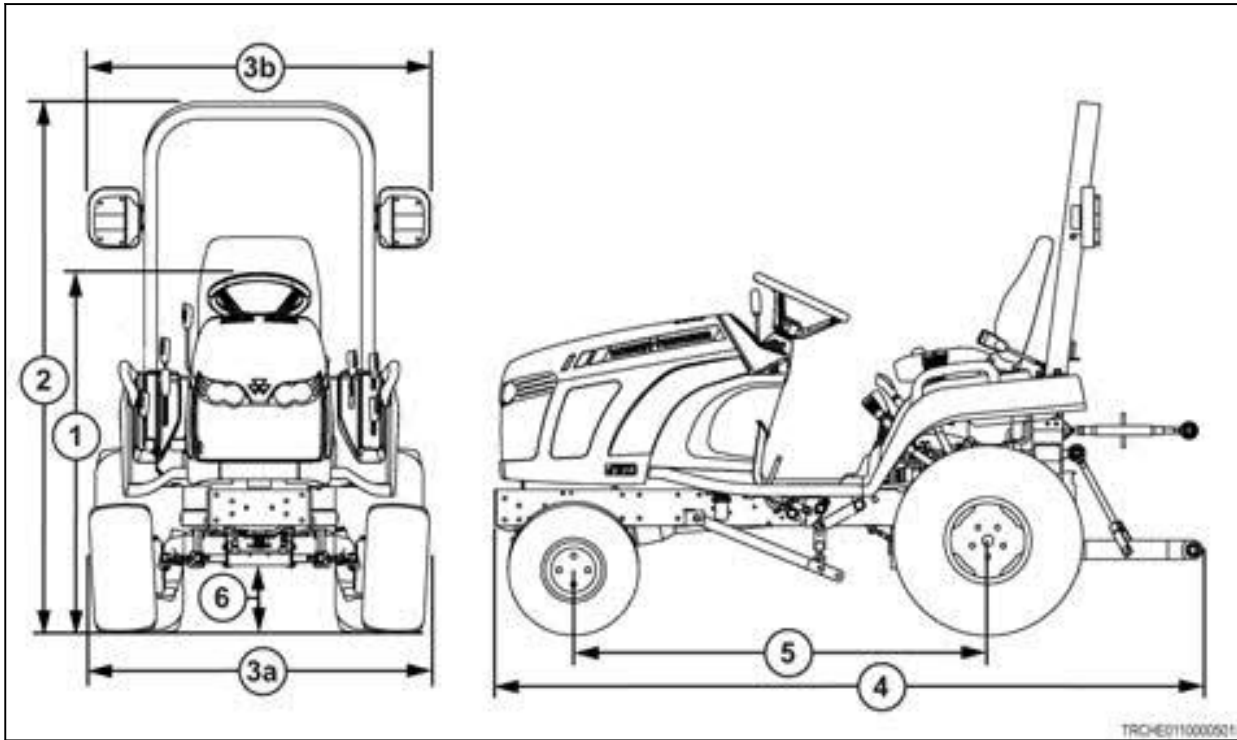


Fig. 5

| | | GC 1705 | | GC1710 without three-point linkage | | GC1715 | | GC1720 | |
|-----|--|-------------------|-------------------|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | Ag tires | Turf tires | Ag tires | Turf tires | Ag tires | Turf tires | Ag tires | Turf tires |
| 1 | Height of Steering Wheel | 1250 mm (49.2 in) | | 1250 mm (49.2 in) | | 1250 mm (49.2 in) | | 1250 mm (49.2 in) | |
| 2 | Overall Height ROPS | 1850 mm (72.8 in) | | 2180 mm (85.8 in) | | 1850 mm (72.8 in) | | 2180 mm (85.8 in) | |
| 3 a | Overall Width (tires) | 1185 mm (46.7 in) | 1190 mm (46.9 in) | 1185 mm (46.7 in) | 1190 mm (46.9 in) | 1185 mm (46.7 in) | 1190 mm (46.9 in) | 1185 mm (46.7 in) | 1190 mm (46.9 in) |
| 3 b | Overall Width (combination rear light) | 1200 mm (47.2 in) | | 1200 mm (47.2 in) | | 1375 mm (54.2 in) | | 1375 mm (54.2 in) | |
| 4 | Overall Length | 2480 mm (97.6 in) | | 2060 mm (81.1 in) | | 2480 mm (97.6 in) | | 2480 mm (97.6 in) | |
| 5 | Wheelbase | 1450 mm (57.1 in) | | 1450 mm (57.1 in) | | 1450 mm (57.1 in) | | 1450 mm (57.1 in) | |

| | | GC 1705 | | GC1710 without three-point linkage | | GC1715 | | GC1720 | | |
|---|---|------------------|--------------------|---------------------------------------|--------------------|-----------------|--------------------|-----------------|--------------------|--|
| | | Ag tires | Turf tires | Ag tires | Turf tires | Ag tires | Turf tires | Ag tires | Turf tires | |
| 6 | Minimum Ground Clearance | 170 mm (6.7 in) | | 170 mm (6.7 in) | | 170 mm (6.7 in) | | 170 mm (6.7 in) | | |
| | Turning Radius without Brake | Right | 2550 mm (100.4 in) | | 2550 mm (100.4 in) | | 2550 mm (100.4 in) | | 2550 mm (100.4 in) | |
| | | Left | 2400 mm (94.5 in) | | 2400 mm (94.5 in) | | 2400 mm (94.5 in) | | 2400 mm (94.5 in) | |
| | Weight (bare tractor with tires and wheels) | With joystick | 635 kg (1397 lb) | | 615 kg (1353 lb) | | 645 kg (1419 lb) | | 660 kg (1452 lb) | |
| | | Without joystick | 610 kg (1345 lb) | | | | | | | |

1.3 Lubrication and periodic maintenance

1.3.1 Lubrication specifications

Lubrication

Grease fittings Massey Ferguson M-1105 or equivalent lithium base grease No. 2

Engine oil Massey Ferguson Multiguard® or equivalent in the correct SAE viscosity. Oil must meet or exceed MIL-L-46152 requirements, API Service CC.

Engine oil recommended viscosity

25 degrees C (78 degrees F) and above SAE 30W, 10W-30

0 to 25 degrees C (32-78 degrees F) SAE 20W, 10W-30

Below 0 degrees C (32 degrees F) SAE 10W, 10W-30

Multiguard® 15W-40 can be used in ambient temperatures above -10 degrees C (14 degrees F)

Transmission and differential housing (including hydraulic system) AGCO Permatran® 821XL

Front axle AGCO Permatran® 821XL

Engine coolant

Freezing protection (original factory fill) -34 degrees C (-30 degrees F)

Recommended coolant 50/50 mixture ethylene glycol and water

1.3.2 Fuel specifications

Type Ultra low Sulfur fuel only

Above 4 degrees C (39 degrees F) No. 2 or No. 2-D

Below 4 degrees C (39 degrees F) No. 1 or No. 1-D

1.3.3 Lubrication and maintenance chart

This lubrication and maintenance chart lists all components that can be serviced in order of frequency in hours for normal operating conditions. Severe conditions or conditions that are not normal will require more frequent lubrication.

See specifications for the correct type and quantity of lubricant.

| Frequency | Maintenance point | Maintenance |
|----------------------|-----------------------------|-------------------------------|
| After first 50 hours | Engine oil and filter | Change oil and replace filter |
| | Transmission oil and filter | Change oil and replace filter |
| | Front axle oil | Change oil |
| Daily | All controls and switches | Check |
| | All fasteners and hardware | Check and tighten |



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| Frequency | Maintenance point | Maintenance |
|-----------|---|-------------------------------|
| | Hoses, fan belt, and wiring | Check and replace |
| | Engine oil | Check level and fill |
| | Transmission oil | Check level and fill |
| | Air screens and radiator | Clean |
| | Radiator coolant | Check level and fill |
| | Fan belt | Check tension and adjust |
| | Air cleaner dust ejector | Clean |
| | Fuel tank | Fill |
| | Fuel filter sediment bowl | Check and clean |
| | Lighting and flashers | Check and replace |
| | Brake | Check and adjust |
| | Tire | Check condition and pressure |
| | Wheel hardware | Tighten |
| | Steering | Check free-play and adjust |
| 50 hours | Brake pivots | Lubricate with grease |
| | Leveling turnbuckle | Lubricate with grease |
| | Hydrostatic pedals | Lubricate with grease |
| | Air cleaner elements | Check, clean, or replace |
| | Battery and cables | Check, clean, and tighten |
| | Battery charge indicator | Check |
| 100 hours | Engine oil and filter | Change oil and replace filter |
| 250 hours | Transmission oil and filter | Change oil and replace filter |
| | Front axle oil | Change oil |
| | Fuel filter element | Replace and bleed |
| | Front wheel alignment | Check and adjust |
| | Front axle end-float (four-wheel drive) | Check and adjust |
| Yearly | Radiator coolant | Drain, flush, and replace |

1.3.4 Lubrication, fill, and drain locations

Grease fittings



Fill location



Drain location



Oil check window



Coolant fill location



Coolant drain location



Oil check dipstick

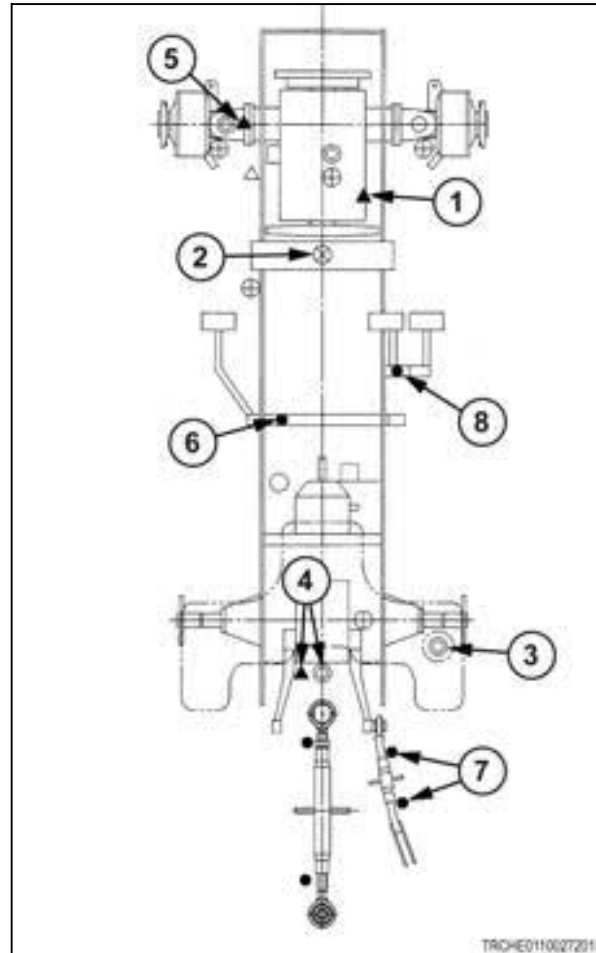


Fig. 6

| Ref | Description | Type |
|-----|-----------------------|---|
| 1 | Crankcase | Engine oil |
| 2 | Engine radiator | Coolant |
| 3 | Fuel tank | Diesel fuel - Ultra Low Sulfur diesel fuel only |
| 4 | Rear housing | Hydraulic oil |
| 5 | Four-wheel drive axle | Hydraulic oil |

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