

# 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.

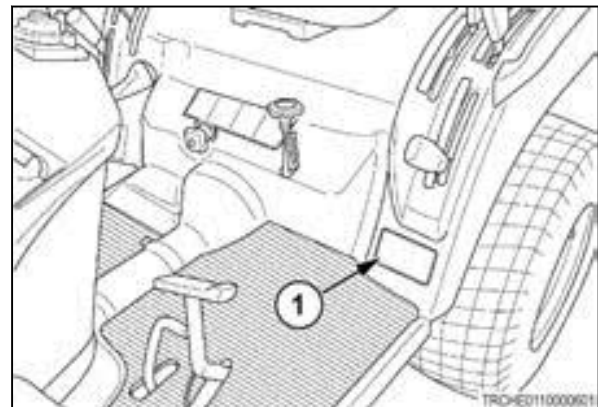


Fig. 1

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

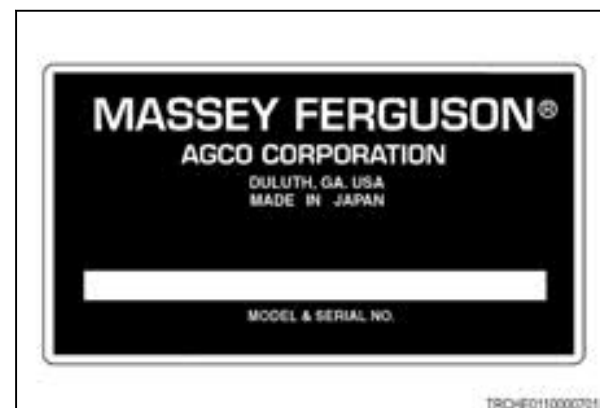


Fig. 2

### 1.1.4 Chassis number

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

Chassis number:	
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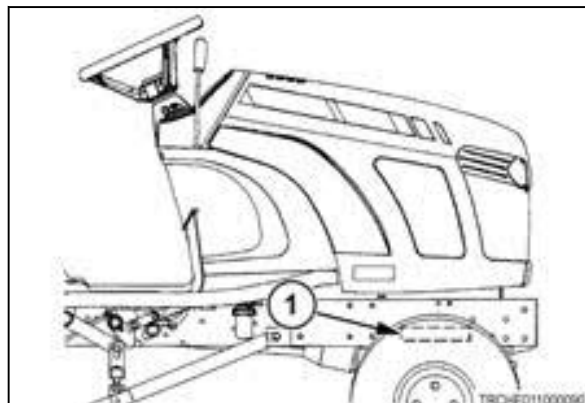


Fig. 3

### 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:	

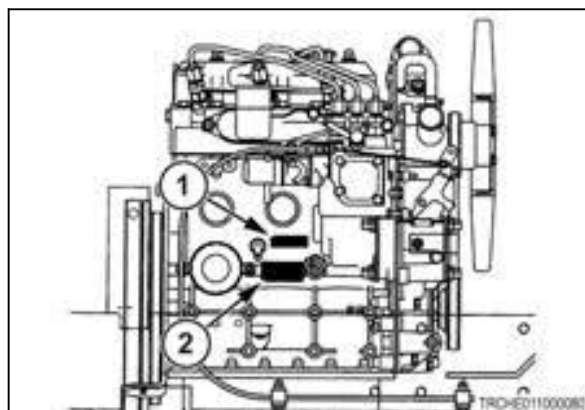


Fig. 4

## 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

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### 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

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### 1.2.6 Capacities

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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)

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### 1.2.7 Tread width

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#### 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)

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### 1.2.8 Maximum axle capacity

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

### 1.2.9 Dimensions

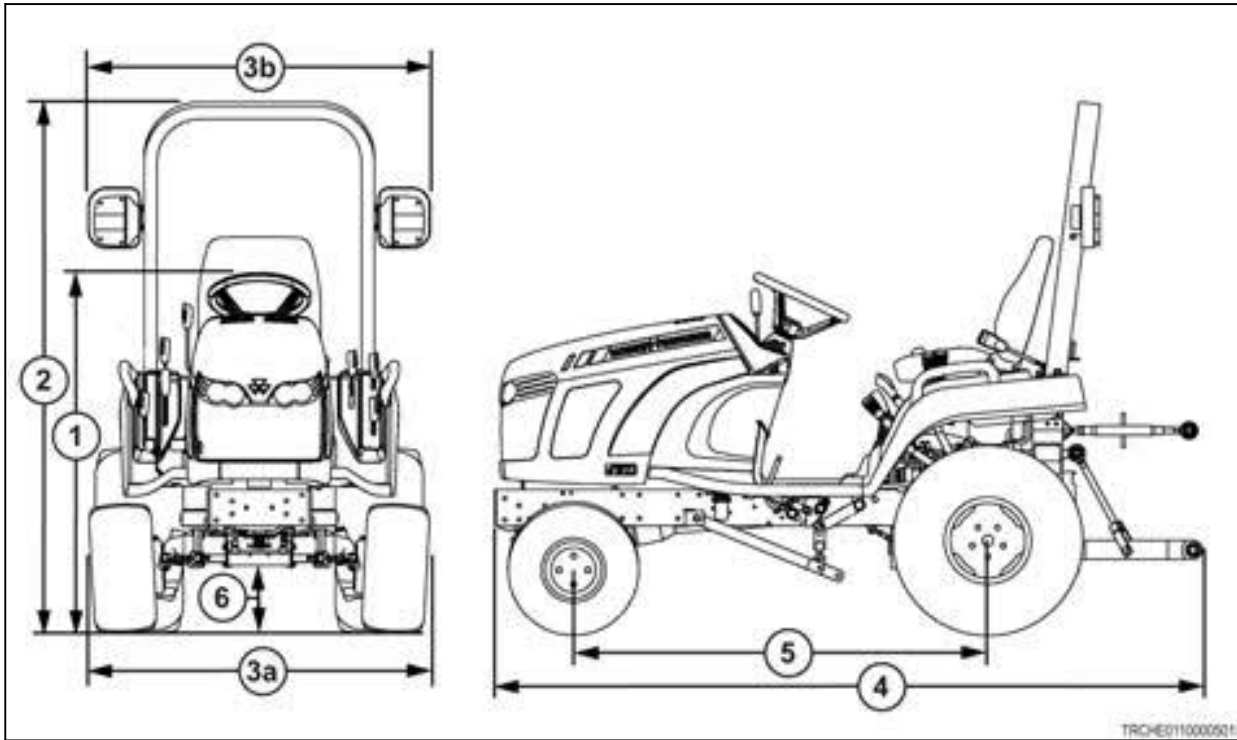


Fig. 5

		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

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

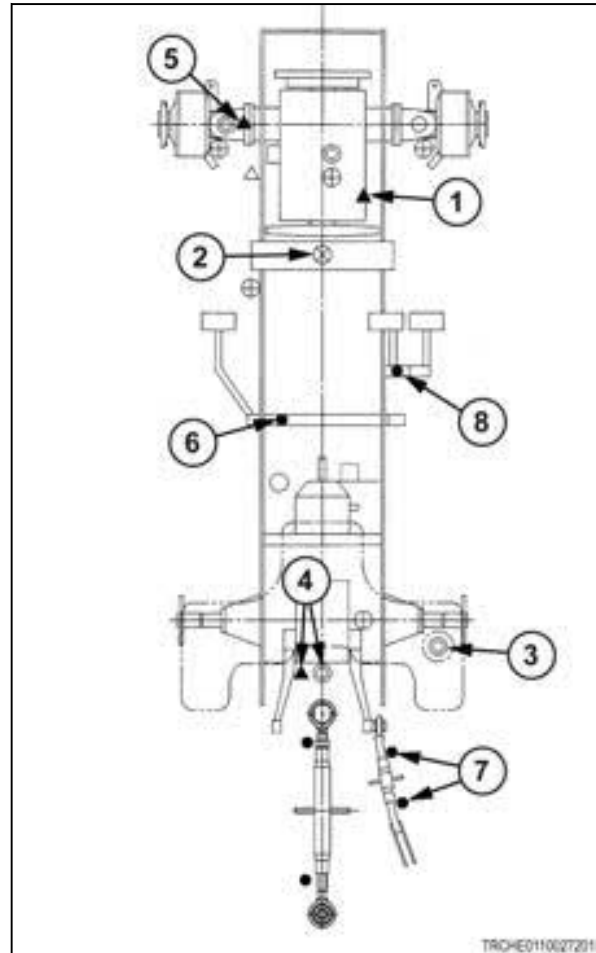


Fig. 6

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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