1233/ST30X PRIOR TO "L" S/N TRACTORS SERVICE MANUAL

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GENERAL INFORMATION

TRACTOR TYPE AND OTHER IDENTIFCATION MARKINGS

FIG. 1: Identification Markings

a. Engine model name
b. Piston displacement (liter)
c. Serial number
1. Tractor serial number
2. Chassis serial number
3. Engine information

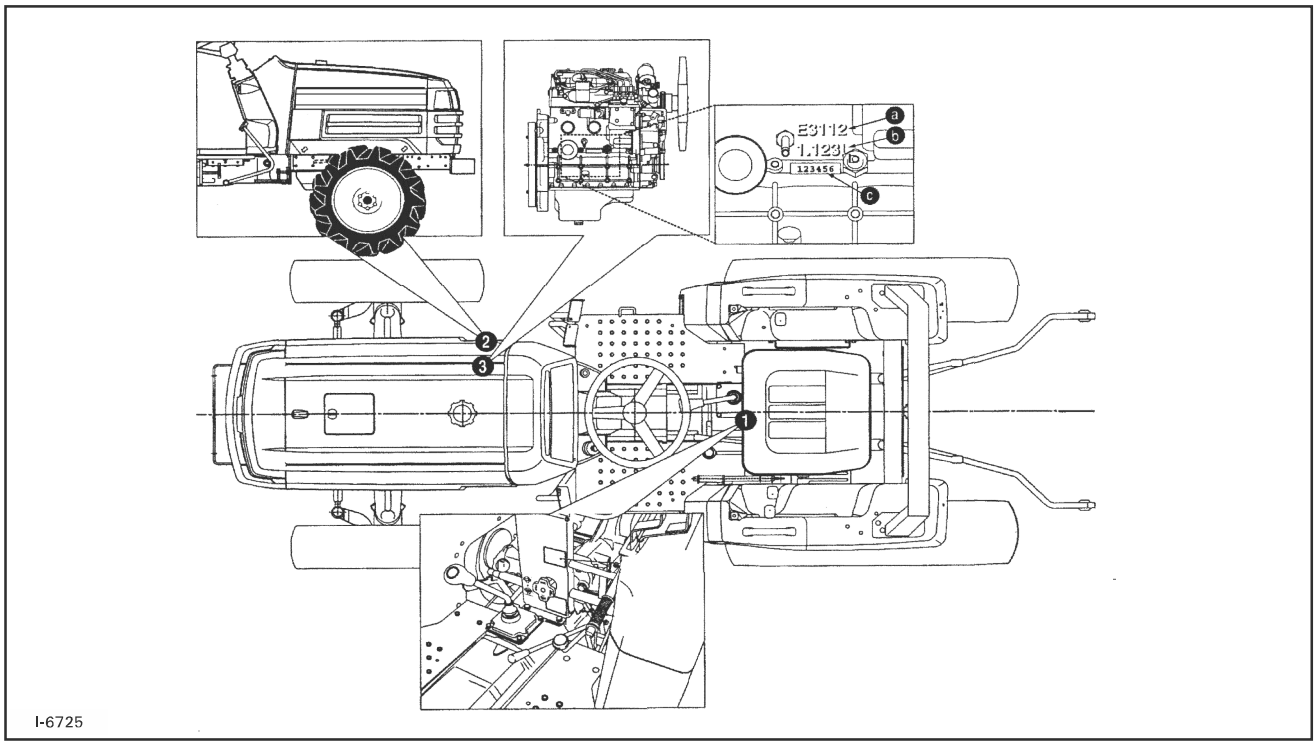


FIG. 1

TRACTOR, ENGINE MODEL, AND RESPECTIVE SERIAL NUMBERS

FIG. 2: Each tractor is identified by means of the tractor model and serial numbers. As a further identification, the engine and chassis are also provided with identification numbers. They are provided as shown.

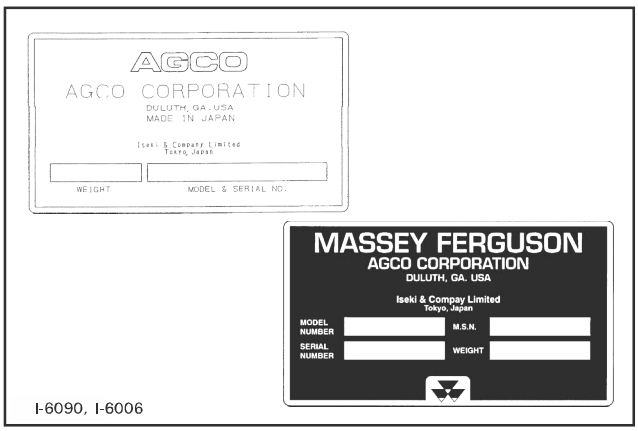


FIG. 2

SPECIFICATIONS

These specifications are subject to change without notice.

Engine

Make	ISEKI Diesel
Model	E3CF
Type	Indirect injection, overhead valve
Displacement	1.463 lit. (89.3 cu in)
Number of cylinders	3
Bore	86 mm (3.385")
Stroke	84 mm (3.307")
Engine horsepower (net) @ engine revolution min (rpm)	27.6 / 2500
PTO horsepower (estimate)	24.2 @ 585 PTO rpm
Firing order	1-3-2
Compression ratio	21.7:1
Low idle speed	930 - 970 rpm
High idle speed	2650 - 2750 rpm
Valve clearance (cold) - intake and exhaust	0.35 mm (.014")
Air cleaner	Single stage - dry element
Engine cooling	Liquid, forced circulation
Cold starting	Glow plugs (3)

Transmission

Primary			F3/R1
Range			3
Gear selections			F9/R3
Clutch			Dry single disc (Dia: 225 mm) 8.86"
Brakes			Mechanically actuated, sealed wet disc
Speed range (Ag tires)	Forward	1	1.91km/h (1.18 mph)
		2	2.82 km/h (1.75 mph)
		3	3.91 km/h (2.43 mph)
		4	4.80 km/h (2.98 mph)
		5	7.06 km/h (4.39 mph)
		6	9.79 km/h (6.08 mph)
		7	10.57 km/h (6.57 mph)
		8	15.57 km/h (6.57 mph)
		9	21.56 km/h (13.40 mph)
	Reverse	1	1.97 km/h (1.22 mph)
		2	4.95 km/h (3.08 mph)
		3	10.90 km/h (6.77 mph)

Power Take-Off (PTO)

Control ..... Lever and pedal
Rear PTO shaft ..... 35 mm (1.375 in) diameter - six spline
Output ..... Clockwise rotation
Speeds @ engine rpm ..... 540 @ 2327
Mid PTO (accessory) shaft ..... 25 mm (1") diameter
Output ..... Clockwise rotation
Speeds @ engine revolution min^{-1} (rpm) ..... 2000 @ 2500

Hydraulics

Main hydraulic system
Pump ..... Gear pump (Open center)
Output – maximum ..... 22.8 liters/min (6 gal/min)
Pressure - relief valve setting ..... 150 kgf/cm^2 (2130 psi)
Rear linkage type ..... Three-point hitch
Control ..... Operated by single "position" control lever
Draft control (optional) ..... Top link sensing
Lift capacity ..... 900 kg (1984 lb) measured at link ends
Steering system type ..... Hydrostatic
Pump ..... Gear/ Flow divider
Output - maximum ..... 9.61 liters/min (2.5 gal/min)
Pressure - relief valve setting ..... 120 kfg/cm^3 (1707 psi)

Electrical System

System voltage ..... 12 volt - negative (-) ground
Battery cca @ - 18°C (O°F) ..... 582 cca
Charging ..... 40 amp alternator with internal regulator

Capacities

Engine crankcase with filter ..... 3.6 liters (3.8 qts.)
Transmission and differential housing ..... 14.0 liters (14.8 qts.)
(including hydraulics) (liters)
Fuel tank ..... 23 liters (6.1 gals.)
Cooling system ..... 7.1 liters (7.5 qts.)
Front axle - four-wheel drive ..... 4.5 liters (4.7 qts.)

Track Setting

Front four-wheel drive

Agricultural tires (dished in only) ..... 960 mm (37.8")

Turf tires (dished in only) ..... 1067 mm (42")

R-4 ..... 1080 mm (42.5")

Rear four-wheel drive

Agricultural tires (adjustable wheels) ..... 1096 mm (43.1")

Turf tires 315/80D-16 ..... 946 mm, 966 mm (37.2", 38.0")

Agricultural narrow ..... 959 mm (37.8")

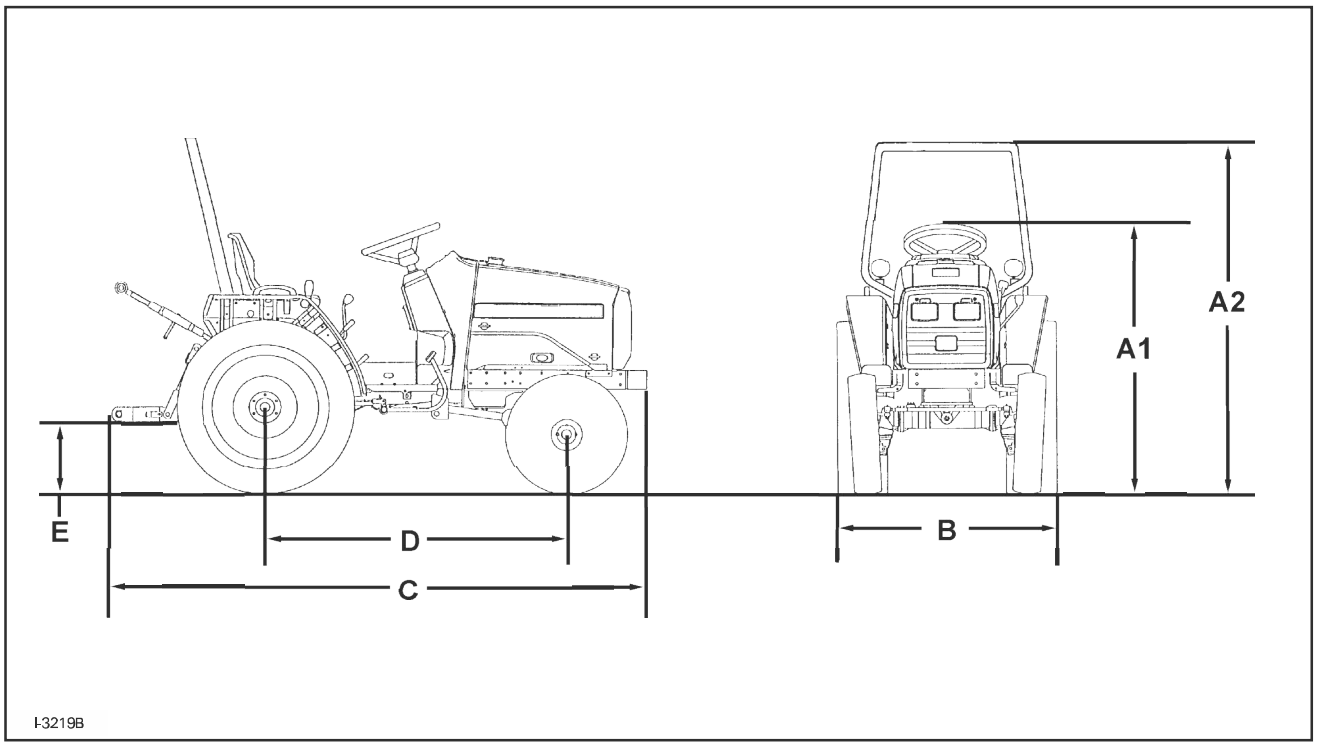
Maximum Axle Loading

Front four-wheel drive - both models ..... 815 kg

Rear axle - both models ..... 1000 kg

GENERAL DIMENSIONS

	Reference	AG 2-WD	Turf 2-WD	AG 4-WD	Turf 4-WD (A)	Turf 4-WD
A1	Height Over Steering Wheel	43.3″ (1100 mm)	42.5″ (1080 mm)	43.3″ (1100 mm)	42.5″ (1080 mm)	43.7″ (1110 mm)
A2	Height Over ROPS	78.3″ (1990 mm)	77.6″ (1970 mm)	78.3″ (1990 mm)	77.6″ (1970 mm)	78.7″ (2000 mm)
B	Minimum Width	48.7″ (1237 mm)	50.5″ (1282 mm)	55.6″ (1411 mm)	49.6″ (1262 mm)	52.1″ (1323 mm)
C	Overall Length	116.5″ (2960 mm)	116.5″ (2960 mm)	116.5″ / 118.3 (2960 mm / 300 mm)	116.5″ / 118.3 (2960 mm / 300 mm)	116.5″ / 118.3 (2960 mm / 300 mm)
D	Wheelbase	64.6″ (1640 mm)	64.6″ (1640 mm)	64.6″ (1640 mm)	64.6″ (1640 mm)	64.6″ (1640 mm)
E	Minimum Ground Clearance	12″ (305 mm)	11.2″ (285 mm)	12″ (305 mm)	11.2″ (285 mm)	11.2″ (285 mm)
-	Turning Radius w/o Brake			122″ (3100 mm)	126″ (3200 mm)	
-	Weight (Std.) (w/ fuel, oil & coolant)	1808 lbs (820 kg)	1742 lbs (790 kg)	1984 lbs (900 kg)	1918 lbs (870 kg)	1984 lbs (900 kg)
-	Weight (HST) (w/ fuel, oil & coolant)					



GENERAL PRECAUTIONS FOR SEPARATION AND REINSTALLATION

Before Operation

- Always be safety-conscious in selecting clothes to wear and suitable tools to use.
- Before disassembly, be sure that you familiarize yourself with the assembled condition for subsequent reference in reassembly.
- Keep parts and tools in proper order during operations.
- When servicing electrically live parts, be sure to disconnect the negative battery terminal.
- To prevent oil or water leaks, use the liquid gasket as required.
- When reassembling disassembled parts, discard used gaskets, O-rings, or oil seals and install new ones.
- When lifting up only the front or rear part of the tractor, be sure to wedge the grounded wheels.
- When the tractor is jacked up, be sure to support the entire tractor with something like a stand. Lifting it up with a jack only is a dangerously unstable procedure.
- When replacing parts, use authorized, genuine AGCO/Massey Ferguson parts only. AGCO/Massey Ferguson assumes no responsibility for accidents, operating problems or damage caused by the use of imitation parts. Also, the use of unauthorized parts will result in relatively poor machine performance.

Precautions To Be Followed When Installing Common Parts

Roller or ball bearings:

- When a bearing is fitted in by the outer race, use an installer which is specially designed to push only the outer race and vice versa.
- The installer must be designed to install the bearing on the shaft in a parallel position.
- When installing a bearing which appears the same on both sides, install it so that the face which has the identification number faces in a direction for easy visual identification. All the bearings which are to be installed in the transmission case should be placed so that their identification number faces outward.
- If a shaft or a hole where a bearing is to be installed has a stopper, the bearing should be pushed in completely until it is seated against the stopper.
- Installed bearings should turn smoothly.

Oil seals

- Oil seal installer should be designed so as not to deform the oil seals.
- During installation, be careful not to damage the lips, and assure that it is pushed in parallel to the shaft or hole.
- When oil seals are installed, there should be no turnover of the lips nor dislocation of the springs.
- When a multi-lip seal is installed, the grooves between lips should be filled with grease, not adhesive.
- Use a lithium-based grease.
- There should be no oil or water leaks through the installed soil seals.

O-rings

- O-rings should be coated with grease before installing.
- Installed O-rings should have no slack or twist.
- Installed O-rings should maintain proper air tightness.

FIG. 3: Snap-rings

- Snap-ring installers should be designed so as not to permanently deform the snap-rings.
- Installed snap-rings should be seated securely in the groove.
- Be careful not to overload the snap-ring to the extent that it is permanently deformed.
- How to install the snap-ring:

  When installing a snap-ring, install it as shown in the figure with its round edge side turned toward the part to be retained. This round edge is formed when the snap-ring is pressed out.

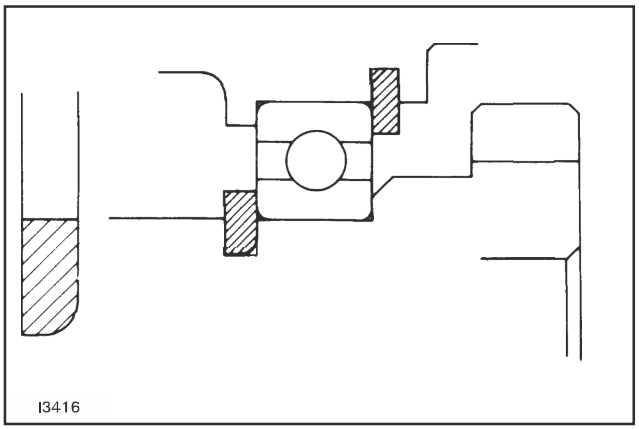


FIG. 3

FIG. 4: Spring (roll) pins

- Spring pins should be driven in properly and tightly.
- Spring pins should be installed so that their seams face the direction from which the load is applied.
- The roll pins installed in the transmission or other parts where much force is applied should be retained with wire.

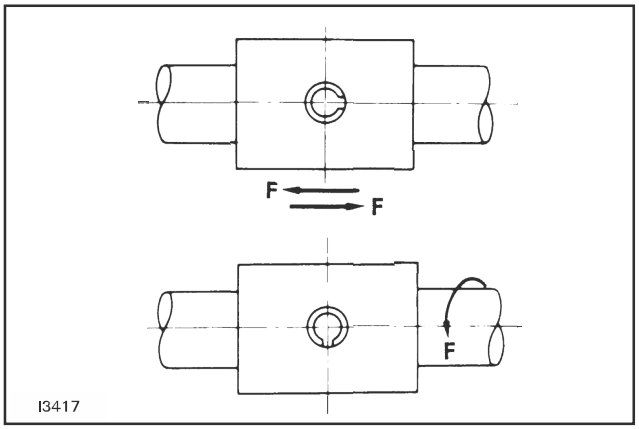


FIG. 4

FIG. 5: Cotter pins

- When installed, cotter pins should be bent securely at the ends as shown.

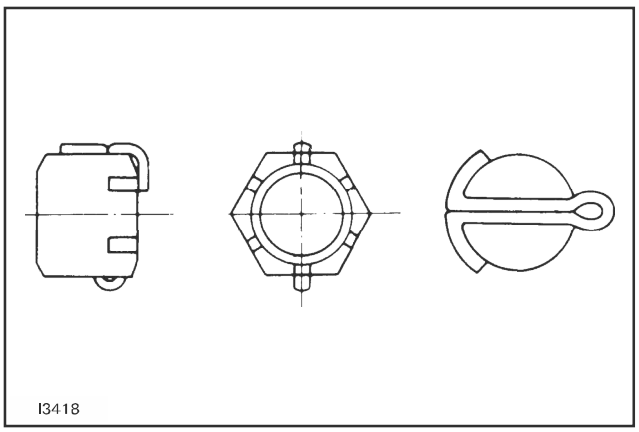


FIG. 5

Bolts and Nuts

- Special bolts are installed at several locations, so be sure not to interchange them with other bolts.
- Bolts and nuts should be tightened to their specified torque with a torque wrench.
- When locking the bolts or nuts with wire or a lock washer, be sure to wind the wire paying sufficient attention to its winding direction and bend the lock washer for secure locking.
- When locking bolts and nuts with an adhesive, apply the adhesive on the thread and tighten securely.
- Apply an adhesive (THREE BOND TB1104) to parts through which there is any possibility of oil leaks, such as stud bolts and tapped-through parts.
- Each lock nut must be tightened securely.
- When tightening bolts and nuts, refer to the tightening torque table.

After installation, each grease fitting should be filled with grease.

- When installing grease fittings of types B and C, be sure to turn the fitting tips in a direction that will provide easy access for a grease gun.

Other Precautions

- Be sure not to damage any finished surfaces or parts.
- Always refrain from forcing installation.
- Each lever knob should be installed coated with an adhesive (SUPER THREE CEMENT TB1702)
- Each contact surface should be coated with an adhesive (THREE BOND TB1215) and tightened evenly with bolts. Adhesive coated surfaces should be installed within 30 minutes after application of the adhesive.
- The contact surfaces should be flawless and free from foreign matter, and especially from grease before application of the adhesive.

- Contact surfaces of the sleeve metal (support) and front transmission case

- Contact surfaces of the hydraulic control lever guide and cylinder case

- Precautions for applying adhesives

- The surface or the thread where an adhesive is to be applied should be completely free of chips and oil.