FIAT
Trattori

55-90 80-90
60-90 90-90
70-90 100-90

WORKSHOP MANUAL

QUICK REFERENCE INDEX

06910079

S E R V I Z I T E C N I C I D I A S S I S T E N Z A

Reprinted

FOREWORD

- *The manual is divided into separately numbered sections.*
- *Two-digit sections (with 2nd digit = 0) contain:*
  — tractor specification (00);
  — tractor sub-assembly specification and data (10 - Engine, 20 - Power Train, etc.).
- *Two-digit sections (with 2nd digit = 1 ts 9) deal with the overhaul of the sub-assemblies whose data are listed in the above sections. The first digit is the same as that of the associated data sections. (e.g. 20 - Power Train; 22 - Clutch; 23 - Transmission, splitter etc.).*
- *A contents list is provided to facilitate retrieval of desired information.*
- *Each sheet carries the print number of the manual and the date of issue in the bottom right-hand corner of the front page.*
- *Revised sheets will carry the same print number followed by a 2-digit number (e.g. first revision 603.54.241.01; second revision 603.54.241.02 etc.) and date of issue.*
  Revised sheets will be accompanied by the updated contents sheet.
- *All information herein is correct at the time of printing but is subject to alteration without prior notice. In case of discrepancies contact the nearest dealer, distributor or branch.*

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GENERAL: Contents

SHIMS

When adjusting, measure each shim with a micrometer gauge and add the values obtained. Do not rely on overall shim thickness or the nominal value indicated for each shim.

ROTARY SHAFT SEALS

To fit rotary shaft seals proceed as follows:
— Prior to fitting, soak the seals for at least half an hour in the fluid to be retained.
— Carefully clean the shaft and ensure that the contact surface is free from damage.
— Turn the end of the sealing lip towards the fluid. If of the thrower lip type, turn the grooves so that during shaft rotation the fluid tends to be thrown back.
— Smear the sealing lip with a very thin coat of lubricant (oil is better than grease) and pack the space between sealing lip and dust shield with grease. (applicable to double-lip seals).
— Fit the seals into their housing using a flat-ended tool or ram. Under no circumstances fit with a mallet or hammer.
— Avoid entry of the seal into the recess in a tilted position. Exert a firm and uniform pressure squarely on it and ensure that the seal is pressed fully home.
— To prevent sealing lip damage during fitting, use some sort of protection before sliding over the shaft.

O-RINGS

Lubricate each ring prior to fitting and, on reassembly, slide over the part but do not twist, otherwise leakage will result.

SEALING COMPOUNDS

On the mating surfaces indicated with X apply one of the following sealing compounds: RTV SILMATE, RHODORSIL CAF 1 or LOCTITE PLASTIC GASKET.
Before applying the sealing compound, prepare the surfaces as follows:
— Using a wire brush, remove any deposits.
— Thoroughly degrease using one of the following detergents: Solvent, kerosene or hot water/soda solution.

BEARINGS

To fit bearings:
— Before installing on shafts, heat to 80° C to 90° C.
— Cool before pressing them into their seats.

ROLL PINS

When fitting straight roll pins ensure that they face in direction of work to stress the pin. Coil roll pins can be installed in any position.

SPARE PARTS

Use exclusively **FIATAGRI spare parts,** bearing the trade mark indicated below.

FIATAGRI
Parts

15138

These are the only spares that ensure the quality, durability and safety of original parts as they are the same as those fitted in production.
Only **FIATAGRI spare parts** can offer this guarantee.
When ordering spare parts please state:
— tractor model (marketing code) and frame number;
— engine type and number;
— part number (given on "Microfiches" or Spare Parts Catalogue).

SERVICE TOOLS

The service tools indicated in this manual are:
— designed specifically for tractors of the FIAT range;
— essential for reliable repair work;
— manufactured and tested to offer efficient and durable service.
Mechanics are also reminded that being equipped means:
— operating in optimum working conditions;
— obtaining the best results;
— saving time and energy;
— working in more safety.

NOTICE

Wear limits recommended for some parts are not binding, being given for guidance only. "Front", "rear", "right" and "left" references are with operator facing direction of forward travel.

WARNING

This symbol is your safety alert sign.
It means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

AVOID ACCIDENTS

Most accidents occuring in the workshop are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason MOST ACCIDENTS CAN BE PREVENTED by recognizing the real cause and doing something about it before the accident occurs.
Regardless of the care used in the design and production of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.
A careful operator is the best insurance against an accident. The complete observance of one simple rule would prevent many thousand serious injuries each year.

That rule is:
ATTENTION: Never attempt to clean, oil or adjust a machine while it is in motion.

SAFETY PRECAUTIONS

GENERAL

- Study the Operator's Manual before starting, operating, maintaining, fuelling or servicing machine.
- Do not wear rings, wrist watches, jewelry or loose or hanging apparel, such as ties, torn clothing, scarves, unbuttoned or unzipped jackets that can catch on moving parts. Wear proper safety equipment as authorized for the job. Examples: Hard hats, safety shoes, heavy gloves, ear protectors, safety glasses or goggles.
- Machine should not be serviced with anyone in the operator's seat unless they are qualified to operate the machine and are assisting in the service.
- Never attempt to operate the machine or its tools from any other position that seated in the operator's seat.
- Never lubricate, service or adjust a machine with the engine running, except as called for in the Operator's Manuals.
- Shut off engine and check that hydraulic oil is no longer under pressure before removing caps and covers.
- Carry out all servicing operations with maximum care and attention.
- Shop or field service platforms and ladders used to maintain or service machinery should be constructed and maintained according to local or national requirements.
- Disconnect batteries and label all controls to indicate operation in progress. Restrain machine and any equipment to be lifted.
- Never check or fill fuel tanks, storage batteries or use starter fluid while smoking or near open flames, due to the presence of flammable fluid.
- Brakes are inoperative when manually released for servicing. Provision must be made to maintain control of the machine by blocking or other means.
- Ensure that the fuel gun is in contact with the filler when refuelling. To reduce the chance of a static electricity sparking maintain contact until after fuel flow is cut off.
- Use only designated towing or pulling attachment points. Use care in making attachment. Be sure pins and locks as provided are secure before pulling. Stay clear of drawbars, cables or chains under load.
- To move a disabled machine, use a trailer or low body truck if available.
- Load and unload on level ground affording full support to the trailer wheels.
- Anchor tractor to truck or trailer loading platform and block wheels as requested by carrier.
- Use only grounded auxiliary power source for heaters, chargers, pumps and similar equipment to reduce the hazards of electrical shock.

- Lift and handle all heavy parts with a lifting device of proper capcity.
- Watch out for people in the vicinity.
- Never place gasoline or diesel fuel in an open pan.
- Never use gasoline or solvent or other flammable fluid to clean parts. Use authorized commercial, non-flammable non-toxic solvents.
- When cleaning parts with compressed air use safety glasses with side shields or goggles.
- Limit the pressure to 2.1 bar (30 psi) according to local or national requirements.
- Do not run engine in a closed building without adequate ventilation.
- Do not smoke or permit any open flame or spark near when refuelling or handling highly flammable materials.
- Do not use an open flame as a light source to look for leaks or for inspection anywhere on the tractor.
- Move carefully when under, in or near machine or implements. Wear required protective equipment, such as hard hat, safety glasses, safety shoes, ear protectors.
- When making equipment checks that require engine running, an operator should be in the operator's seat at all times with the mechanic in sight.
- For field service, move machine to level ground if possible and block machine. If work is absolutely necessary on a gradient, block machine and its attachments securely. Move the machine to level ground as soon as possible.
- Guard against kinking chains or cables. Do not lift or pull through a kinked chain or cable. Always wear heavy gloves when handling chain or cable.
- Be sure cables are anchored and the anchor point is strong enough to handle the expected load. Keep exposed personnel clear of anchor point and cable or chain.
- Keep maintenance area CLEAN and DRY. Remove water or oil puddles immediately.
- Do not pile oily, greasy rags - they are a fire hazard. Store in a closed metal container. Before starting machine or moving attachment check and adjust and lock operator's seat. Be sure all personnel in the area are clear before starting or moving machine and any of its attachments.
- Do not carry loose objects in pockets that might fall unnoticed into open compartments.
- Wear proper protective equipment such as safety goggles or safety glasses with side shields, hard hat, safety shoes, heavy gloves where metal or other particles are apt to fly or fall.
- Wear welders's protective equipment such as dark safety glasses, helmets, protective clothing, gloves and safety shoes when welding. Dark safety glasses must be worn by anyone standing by when welding is in progress. DO NOT LOOK AT ARC WITHOUT PROPER EYE PROTECTION.
- Wire rope develops steel slivers. Use authorized protective equipment such as heavy gloves and safety glasses when handling.
- Handle all parts with extreme care. Keep hands and fingers from between parts. Wear authorized protective equipment such as safety glasses, heavy gloves, safety shoes.

START UP

- Do not run the engine of this machine in closed areas without proper ventilation to remove deadly exhaust gases.
- Do not place head, body, limbs, feet, fingers or hands near a rotating fan or belts. Be especially alert around a pusher fan.

ENGINE

- Turn radiator cap slowly to relieve pressure before removing. Add coolant only with engine stopped or idling if hot.
- Do not run engine when refuelling and use care if engine is hot due to the increased possibility of fire if fuel is spilled.
- Never attempt to check or adjust fan belts when engine is running. Do not adjust engine fuel pump when the machine is in motion.
- Never lubricate a machine with the engine running.

GENERAL
Safety Precautions

ELECTRICAL

- When auxiliary batteries are used, connect both cable ends to the terminals as specified: (+) with (+) and (−) with (−). Do not short circuit terminals. BATTERY GAS IS HIGHLY INFLAMMABLE. Leave battery box open to improve ventilation when charging batteries. Never check charge by placing metal objects across the posts. Keep sparks or open flame away from batteries. Do not smoke near battery to guard against the possibility of accidental explosion.

- Check for fuel or battery electrolyte leaks before starting service or maintenance work. Eliminate leaks before proceeding.

- Do not charge batteries in a closed area. Provide proper ventilation to guard against an accidental explosion from an accumulation of explosive gases given off in the charging process.

- Disconnect batteries before working on electrical system, or starting repair work of any kind.

HYDRAULIC

- Fluid escaping under pressure from a very small hole can almost be invisible and can have sufficent force to penetrate the skin. Use a piece of cardboard or wood to search for suspected pressure leaks. DO NOT USE HANDS. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

- When making pressure checks use the correct gauge for expected pressure.

WHEELS AND TYRES

- Be sure tyres are properly inflated to the manufacturer's specified pressure. Inspect for damage periodically.

- Stand to one side when changing inflation of tyres.

- Check tyres only when the machine is empty and tyres are cool to avoid overinflation. Do not use reworked wheel parts. Improper welding, heating or brazing weakens them and can cause failure.

- Never cut or weld on the rim of an inflated tyre.

- When servicing tyres block the machine in front and back of all wheels. After jacking up, place blocking under machine to protect from falling according to local or national requirements.

- Deflate tyres before removing objects from the tread.

- Never inflate tyres with flammable gases. Explosion and personal injury could result.

ATTACHMENTS

- Lift and handle all heavy parts with a lifting device of proper capacity. Be sure parts are supported by proper slings and hooks. Use lifting eyes if provided. Watch out for people in the vicinity.

- Handle all parts with extreme care. Keep hands and fingers from between parts. Wear authorized protective equipment such as safety glasses, heavy gloves, safety shoes.

- Guard against kinking chains or cables. Always wear heavy gloves when handling chain or cable.

IDENTIFICATION DATA

Marketing code:	55-90 55-90 DT	60-90- 60-90 DT	70-90 70-90 DT	80-90 80-90 DT	90-90 90-90 DT	100-90 100-90 DT
— 2-wheel drive						
— 4-wheel drive						
Engineering code:						
— 12-speed, 2-wheel drive	669.200.000	670.200.000	671.200.00	672.200.00	—	—
– 15-speed, 2-wheel drive	–	–	–	–	656.300.000	657.200.000
— 20-speed, 2-wheel drive	669.200.000 variant 700.111.530	670.200.000 variant 700.111.530	671.200.000 variant 700.111.530	672.200.000 variant 700.111.530	656.300.000 variant 700.111.560	657.200.000 variant 700.111.560
— 12-speed, 2-wheel drive with reverser	669.200.000 variant 700.111.100	670.200.000 variant 700.110.100	671.200.000 variant 700.110.100	672.200.000 variant 700.110.100	—	—
— 12-speed, 4-wheel drive	669.227.000	670.227.000	671.227.000	672.227.000	—	—
— 15-speed, 4-wheel drive	—	—	—	—	656.327.000	657.227.000
— 20-speed, 4-wheel drive	669.227.000 variant 700.111.530	670.227.000 variant 700.111.530	671.227.000 variant 700.111.530	672.227.000 variant 700.111.530	656.327.000 variant 700.111.560	657.227.000 variant 700.111.560
— 12-speed, 4-wheel drive with reverser	669.227.000 variant 700.110.100	670.227.000 variant 700.110.100	671.227.000 variant 700.110.100	672.227.000 variant 700.110.100	—	—

SPECIFICATION

	55-90 55-90 DT	60-90 60-90 DT	70-90 70-90 DT	80-90 80-90 DT	90-90 90-90 DT	100-90 100-90 DT
Engine type (all versions)	FIAT 8035.06.300 (C.A.V. pump) 8035.06.200 (BOSCH pump)	FIAT 8035.05.300 (C.A.V. pump) 8035.05.200 (BOSCH pump)	FIAT 8045.06.300 (C.A.V. pump) 8045.06.200 (BOSCH pump)	FIAT 8045.05.305 (C.A.V. pump) 8045.05.205 (BOSCH pump)	FIAT — 8055.05.200 (BOSCH pump)	FIAT 8065.06.300 (C.A.V. pump) 8065.06.200 (BOSCH pump)
WEIGHTS						
Operating weight (including lift, implement attachment, tow hook, swinging drawbar and comfort cab:						
- 2-wheel drive kg.	2780	2810	3040	3100	3560 (o)	4065 (o)
l.	6130	6196	6703	6835	7850 (o)	8963 (o)
- 4-wheel drive . . . . kg.	2980	3020	3330	3420	3880 (o)	4415 (o)
lb.	6571	6659	7343	7541	8555 (o)	9735 (o)

(o) Weight with supercomfort cab.


55-90
60-90
13464


70-90
80-90
13463


FIATAGRI
FIATAGRI
13856

SPECIFICATION

ENGINE	55-90 55-90 DT	60-90 60-90 DT	70-90 70-90 DT	80-90 80-90 DT	90-90 90-90 DT	100-90 100-90 DT
Type	4-stroke diesel, naturally aspirated					
Injection	Direct					
Number of cylinders	3		4		5	6
Sleeves	Dry, pressed in engine block					
Bore and stroke	100x115 mm. (3.94x4.53 in)	104x115 mm. (4.09x4.53 in)	100x115 mm. (3.94x4.53 in)	104x115 mm. (4.09x4.53 in)	104x115 mm. (4.09x4.53 in)	100x115 mm. (3.94x4.53 in)
Displacement	2710 cm^3	2931 cm^3	3613 cm^3	3908 cm^3	4885 cm^3	5419 cm^3
Compression ratio	17:1					
Max. horsepower DGM/DIN	40,5 kW (55 Hp)	44 kW (60 Hp)	51,5 kW (70 Hp)	58,9 kW (80 Hp)	66,2 kW (90 Hp)	73,6 kW (100 Hp)
Max. output speed	2500 rpm	2500 rpm	2500 rpm	2500 rpm	2500 rpm	2500 rpm
Max. torque speed	1500 rpm	1500 rpm	1500 rpm	1500 rpm	1500 rpm	1500 rpm
Main bearings	4		5		6	7
Oil pan	Iron					
Balancer	—		Flyweight, engine oil pan		—	
Valve Gear	OH valves, push rod operated					
Inlet: Opens: BTDC	3°					
Inlet: Closes: ABDC	23°					
Exhaust: Opens: BBDC	48°30'					
Exhaust: Closes: ATDC	6°					
Valve clearanc — for timing check	0.45 mm (0.018 in)					
— Normal - Inlet	0.25 mm (0.010 in)					
- Exhaust	0.35 mm (0.014 in)					
Fuel System Air cleaner	Oil bath or dry, automatic drain centrifugal precleaner					
Fuel filters (on feed pump delivery)	Two, in line					
	replaceable paper cartridge, water separator integral with first filter				Integral cartridge both with water separator.	
Feed pump	Double diaphragm					
— Operation	Cam					
Injection pump	Distributor					

	55-90 55-90 DT	60-90 60-90 DT	70-90 70-90 DT	80-90 80-90 DT	90-90 90-90 DT	100-90 100-90 DT
Injection pump	Distributor					
— Type — BOSCH	VE 3/11 F 1250 L 163-1-4794587-4800682	VE 3/11 F 1250 L 163 - 4794586	VE 4/11 F 1250 L 164-1-4794589	VE 4 /11 F 1250 L 164-4794588	VE 5/11 F 1250 R 165 - 4794590	VE 6/11 F 1250 R 181 - 4798834
— Type — C.A.V.	DPS 8522A 010A-4797414	DPS 8522A 000A-4797413	DPS 8520A 100A-4797416	DPS 8520A 090A-4797415	—	—
— Integral all-speed governor — BOSCH C.A.V.	Centrifugal					
— Integral advance device — BOSCH C.A.V.	Hydraulic					
— Pump timing, BTDC — BOSCH	$6^0 \pm 1^0$	$6^0 \pm 1^0$	$4^0 \pm 1^0$	$4^0 \pm 1^0$	$6^0 \pm 1^0$	$4^0 \pm 1^0$
— Pump timing, BTDC — C.A.V.	$0^0 \pm 1^0$	$0^0 \pm 1^0$	$0^0 \pm 1^0$	$0^0 \pm 1^0$	—	—
Injectors	4-orifice	3-orifice	4-orifice	3-orifice	3-orifice	4-orifice
— Type	See page 10, Section 10					
— Release pressure	230 to 238 bar (235 to 243 kg/cm², 3336 to 3452 psi)					
Firing order	1-2-3		1-3-4-2		1-2-4-5-3	1-5-3-6-2-4
Lubrication System	Forced feed, gear pump					
Pump drive	Crankshaft					
Oil filters	Strainer on pump inlet Full flow cartridge on outlet				two full flow cartridges on outlet	
Relief valve	In pump body					
— Oil pressure at governed speed	2.9 to 3.9 bar (3 to 4 kg/cm², 42.6 to 56.9 psi)					
Cooling System	Water, centrifugal pump					
Radiator	3 or 4 deep core vertical tube					
Expansion tank	Translucent plastic					
Fan, water pump pulley mounted	Suction, steel					
Temperature control	Wax thermostat					

	55-90 55-90 DT	60-90 60-90 DT	70-90 70-90 DT	80-90 80-90 DT	90-90 90-90 DT	100-90 100-90 DT
Tractor Meter	On instrument panel					
— Drive	Oil pump gear				Camshaft pinion	
Hourmeter activation speed	1800 rpm					
Meter drive ratio	1 to 2					

POWER TRAIN

Clutch (55-90, 60-90, 70-90 and 80-90)

Type	LUK, O.M.G. or VALEO 11"
Construction	Twin, dry single plate
Control	
— Transmission	Pedal
— PTO	Manual lever
Plate material:	
—Transmission:	
● 55-90, 60-90 and 70-90 (standard)	Organic
● 80-90 (standard) and 55-90, 60-90 and 70-90 (optional)	Cerametallic compound
— PTO	Organic

Clutch (90-90 and 100-90)

Type	VALEO or LUK 12"
Construction	Twin, dry single plate
Control	
— Transmission	Pedal
— PTO	Manual lever
Plate material:	
— Transmission	Cerametallic compound
— PTO	Organic

Transmission (55-90, 60-90, 70-90 and 80-90)

Type	Constant mesh full synchromesh
Gear	Helical
Splitter	Pinion drive, 3 forward and 1 reverse range for 12 forward and 4 reverse speeds
Creeper	20 forward and 8 reverse speeds
Reverser	Mechanical, 12 forward, 12 reverse speeds

(Tractors cannot be equipped with both creeper and reverser, as they are installed in the same position between clutch and transmission).

Transmission and splitter control	Separate levers to right of operator
Creeper or reverser control	Lever to left of operator

Transmission (90-90 and 100-90)

Type	Constant mesh, full-synchromesh (reverse included), 5 forward and 1 reverse ratio
Gear	Helical
Splitter	Planetary, downstream of transmission, 3 ranges for 15 forward and 3 reverse speeds.
Creeper	In line with splitter, 20 forward and 4 reverse speeds.
Transmission and splitter control	Separate levers to right of operator
Creeper control	Lever (same as splitter)
Bevel drive	On differential
Differential	Two pinion
Differential lock	Pedal controlled, self-maintaining, with hydraulic safety release actuated by brake pedals.
Final drives	Planetary, three pinion

BRAKES

Service

Type	Disc, oil-bath, axle shaft mounted
Operation	Hydrostatic, divided circuit
Control	Separate latched pedals.

Parking and emergency (55-90, 60-90, 70-90 and 80-90)

Triple oil-bath discs, fully independent, acting on bevel pinion shaft through gear, hand lever operated.

Parking and emergency (90-90 and 100-90)

Twin oil-bath discs, fully independent, fitted directly on bevel pinion shaft, hand lever operated.

STEERING

Independent circuit hydrostatic steering with anti-shock valves and flow proportioning pump.

Linkage joints Sealed for life

Turning radius (no brakes):

- 55-90 and 60-90 3900 mm (11 ft 3 in)
- 55-90 DT, front wheel drive out 5100 mm (16 ft 9 in)
- 60-90 DT, front wheel drive out 5200 mm (17 ft)
- 70-90 and 80-90 4100 mm (13 ft 5 in)
- 70-90 DT and 80-90 DT, front wheel drive out 5300 mm (17 ft 4 in)
- 90-90 and 100-90 5000 mm (16 ft 5 in)
- 90-90 DT and 100-90 DT, front wheel drive out 5700 mm (18 ft 8 in)

FRONT AXLE (55-90, 60-90, 70-90, 80-90, 90-90 and 100-90).

Type	Inverted U, telescoping, center pivotting
Track adjustment	Sliding axle ends
Track widths	6 off

FRONT WHEEL DRIVE (55-90 DT, 60-90 DT, 70-90 DT, 80-90 DT, 90-90 DT and 100-90 DT).

Type	Full floating, center pivotting, unjointed drive shaft and articulations on tractor centerline.
Differential	Two pinion, no spin unit optional
Final drives	Planetary
Track widths	Disc/Rim/Hub
Repositioning	5 off

REAR WHEELS

Track widths	Disc/Rim/Hub
Repositioning	
– 55-90, 60-90, 70-90 and 80-90	7 off
– 90-90 and 100-90	8 off

POWER TAKE-OFF

Type	Fully independent
540 rpm	55-90, 60-90, 70-90, 80-90 and 90-90
540-1000 rpm	100-90

Shaft	540 rpm	$1^3/_8$" - 6 spline
	1000 rpm	$1^3/_8$" - 6 spline

Control	Hand lever operated single dry plate clutch

Standard speed selection:

— Lever on PTO housing (55-90, 60-90, 70-90 and 80-90)

— Automatic upon changing splined ends (90-90 and 100-90)

Engine speed with PTO at standard speeds:

— 540 rpm:
- 2198 rpm (55-90, 60-90, 70-90 and 80-90);
- 2126 rpm (90-90 and 100-90);

— 1000 rpm:
- 2380 rpm (55-90, 60-90, 70-90 and 80-90)
- 2410 rpm (90-90 and 100-90)

Rotation	Clockwise (tractor viewed from rear).

Ground speed PTO

Control	Same as independent
Rotation	PTO

Shaft drive ratio

- 540 rpm	55-90 and 60-90	8.2 revs per rear wheel turn
	70-90 and 80-90	8.9 revs per rear wheel turn
	90-90 and 100-90	17.3 revs per rear wheel turn
- 1000 rpm	55-90 and 60-90	14.1 revs per rear wheel turn
	70-90 and 80-90	15.2 revs per rear wheel turn
	90-90 and 100-90	28.2 revs per rear wheel turn

LIFT

Type	Hydraulic, draught, position and combined draught/position control
Draught control	Lower links through oil-bath sensing bar
Control from operator's seat	Two independent levers
Control from ground	Outer lever
Variospeed sensitivity control	4-position lever on control valve
Response control	Knob on control valve
Pump	Gear, engine valve gear driven.

Main cylinder	Single acting
Auxiliary outer cylinder	Standard for 100-90, optional for 90-90.
LIFT-O-MATIC push-button	Lower link raising and lowering with automatic return to selected working depth.
Hydraulic fluid	Rear transmission oil
Max. lift capacity and max. lift stroke	See section 50, page 4

Implement attachment

— 55-90 and 60-90	Categories 1 and 2
— 70-90, 80-90, 90-90 and 100-90	Category 2

Side sway restrictors:

- — Check chains (55-90 and 60-90)
- — Check links (standard for 70-90, 80-90, 90-90 and 100-90, optional for 55-90 and 60-90)

Remote control valves

Number	One, two or three
Type	— Convertible from single to double-acting — Double-acting, with float position
Trailer power braking remote control valve activated by tractor brake pedals (optional)	

TOWING ATTACHMENTS

Rear

Drilled crossmember
Swinging drawbar
Tow hook, adjustable for height
Support with semi-trailer hitch
Rockinger jaw hook, revolving on longitudinal axis and including automatic hitch pin coupler with lock
Lemoine hook

Front

Fixed pull hook

BALLASTING

Front axle

Support	130 kg (286.6 lb)

Plates

— Six, 40 kg (88.2 lb) each	370 kg (815.8 lb) total
— Ten, 40 Kg (88.2 lb) each	530 kg (1168.6 lb) total

Rear wheels

Rings

—Four, 55 kg (121.3 lb) each	220 kg (485.1 lb) total
—Six, 55 kg (121.3 lb) each	330 kg (727.6 lb) total

Additional rear wheel ballasting	Cast iron discs for spiral guide rail type rims, 150 kg or 330.7 lb each for a total of 300 kg or 661.5 lb (standard for 100-90 and optional for 70-90, 80-90 and 90-90)

BODY

Platform fully suspended, mounted on 4 or 6 rubber buffers. Integral structure including footboards, fenders and dashboard. Compact, rigid, vibration-free. Provision for ROP frame or cab installation.
Fuel tank located behind operator's seat, boxed between fenders.
Operator's seat de luxe, padded with tiltable arm rests. Parallelogram suspension, hydraulic dampers, manual adjustment for height and ride.
Multi function instrument panel with check control plus control board.

Hood

Fully enclosed, in 4 sections.

LH panels	access to oil filters (2 off for 90-90 and 100-90), dipstick
RH panels	access to fuel filters, feed pump, injection pump, power steering fluid reservoir, lift filters

Cab

Comfort and Supercomfort cab versions available.
Both feature:

Visibility	all round
Accessibility	on both sides
Rear and side windows	adjustable
Safety hatch	in cab roof
Heating and ventilation	3-speed fan
Air conditioner	optional for Supercomfort cab
Protection	fully insulated against dust, cold, heat, etc.
Windshield washer and wiper	standard
Courtesy lights	standard

ELECTRICAL SYSTEM

Voltage 12 V

Alternator:

— 45 A, with integral electronic voltage regulator, MARELLI 4787598 (55-90, 60-90, 70-90 and 80-90)

— 65 A, with integral electronic voltage regulator, MARELLI 4787673 or BOSCH 4765725 (90-90 and 100-90).

Starter

— 55-90 and 60-90: MARELLI MT 71AA / BOSCH JF→ 12 V / LUCAS M45 G 26390/D

— 70-90 and 80-90: MARELLI MT 68AB / BOSCH JD→ 12 V

— 90-90 and 100-90: MARELLI MT68LB / BOSCH JD→ 12 V

Lighting

Headlamps: Twin, high and asymmetric low beams, 45/40 W

Front lights

— Parking 5 W
— Turn signal 21 W

Tail lights

— Parking 5 W
— Turn signal 21 W
— Stop 21 W
— License plate

Instruments and accessories

Instrument panel: multi-function with check control (see section 60, page 20)

Control board (see section 60, page 19)
Floodlight 35 W
Rear power point DIN, 7-pole
Dash power point Single-pole, control board-mounted
Horn push
Cold starting thermostarter or start-pilot
Cigar lighter dash-mounted
Fuses up to 12 (see Section 60, page 20)
Hazard warning lights tractor and trailers

TYRE SIZES

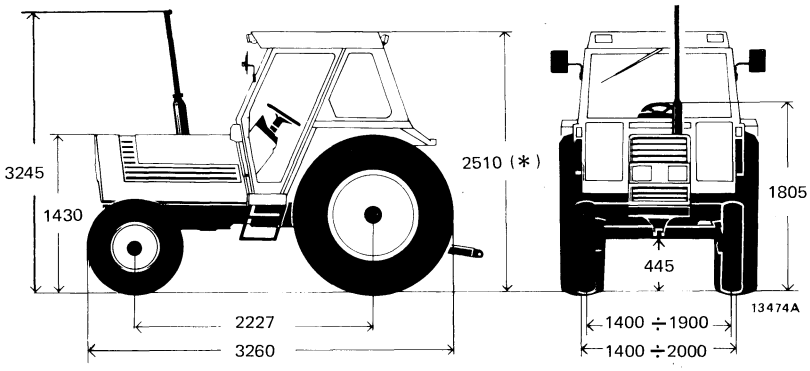
	55-90	60-90	70-90	80-90
Front	6.00-16 7.50-16	6.00-16 7.50-16	7.50-16 7.50-18 9.00-16	7.50-16 7.50-18 9.00-16
Rear	14.9/13-30 14.9/13-28 12.4/11-36	16.9/14-28 14.9/13-30 16.9/14-30 12.4/11-36 13.6/12-36	16.9/14-30 18.4/15-30 16.9/14-34 13.6/12-38	18.4/15-30 16.9/14-34 13.6/12-38

	55-90DT	60-90DT	70-90DT	80-90DT
Front	9.5/9-24 (1) 11.2/10-20 (2) 12.4R20 (1) 11.2/10-24 (3)	9.5/9-24 (1)(2) 12.4R20 (3)(4) 11.2/10-24 (5)(6)(7)	11.2/10-24 (1) 12.4/11-24 (3) 13.6/12-24 (4) 11.2/10-28 (2)	12.4/11-24 (1) 13.6/12.24 (2) 11.2/10-28 (3)
Rear	14.9/13-28 (2) 14.9/13-30 (1) 12.4/11-36 (3)	16.9/14-28 (2)(4) 14.9/13-30 (1)(3) 16.9/14-30 (5) 12.4/11-36 (6) 13.6/12-36 (7)	16.9/14-30 (1) 18.4/15-30 (3) 16.9/14-34 (4) 13.6/12-38 (2)	18.4/15-30 (1) 16.9/14-34 (2) 13.6/12-38 (3)

	90-90	90-90DT	100-90	100-90DT
Front	7.50-18 7.50-20 9.00-16 10.00-16	13.6/12-24 (1) 14.9/13-24 (2) 11.2/10-28 (3) 12.4/11-28 (4)	7.50-20 9.00-16 10.00-16	14.9/13-24 (1) 12.4/11-28 (2)
Rear	16.9/14-34 18.4/15-34 13.6/12-38 16.9/14-38	16.9/14-34 (1) 18.4/15-34 (2) 13.6/12-38 (3) 16.9/14-38 (2)(4)	18.4/15-34 16.9/14-38	18.4/15-34 (1) 16.9/14-38 (1)(2)

(1) (2) (3) (4) (5) (6) (7) Tyre matching references.

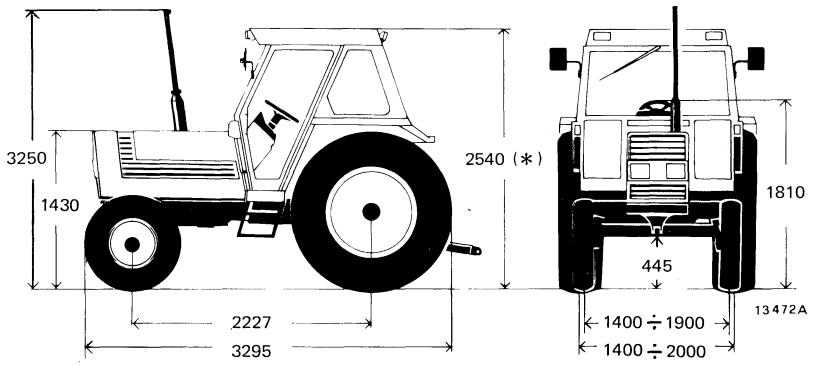
DIMENSIONS (in mm)



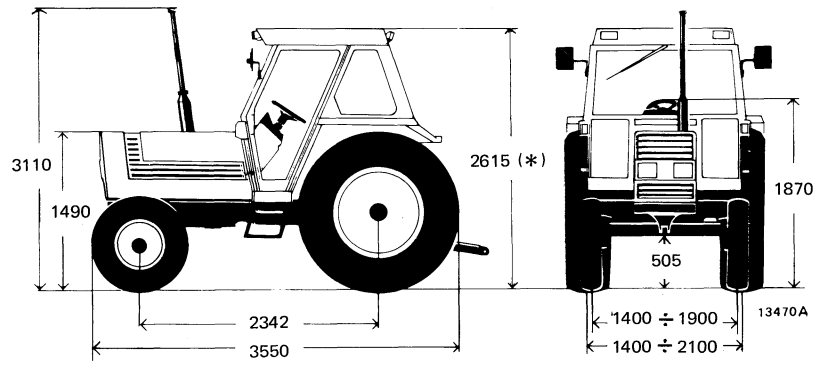
55-90
(6.00-16 front and 14.9/13-28 rear tyres)

(*) 2495 with ROPS frame

60-90
(6.00-16 front and 16.9/14-28 rear tyres)



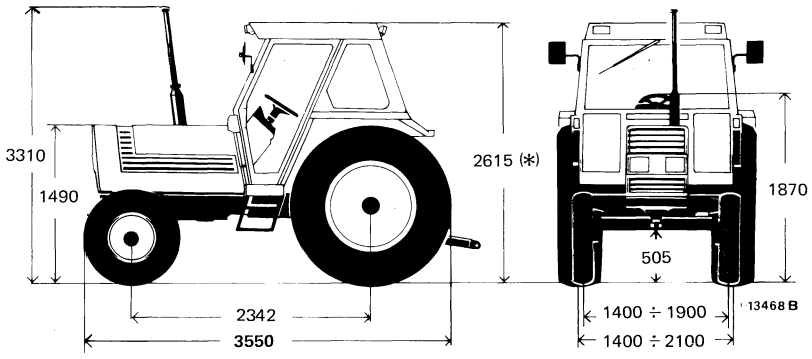
(*) 2525 with ROPS frame



70-90
(7.50-18 front and 13.6/12-38 rear tyres)

(*) 2600 with ROPS frame

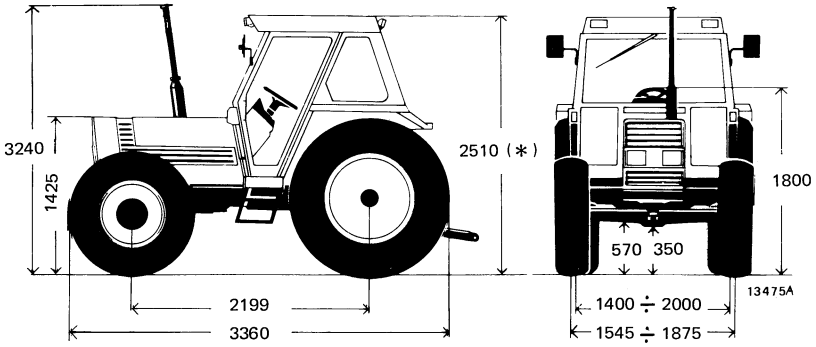
80-90
(7.50-18 front and 13.6/12-38 rear tyres)



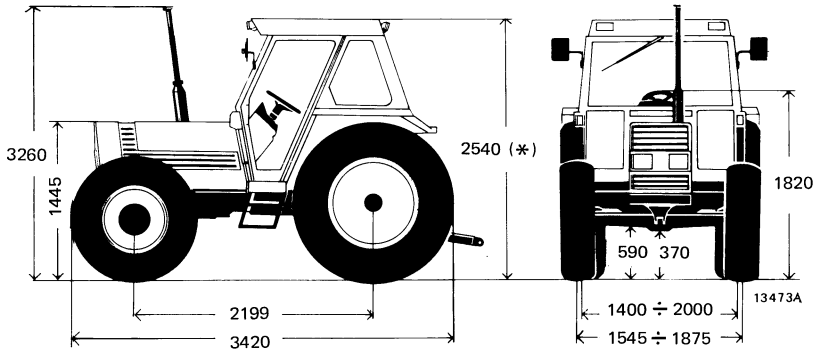
(*) 2600 with ROPS frame

DIMENSIONS (in mm)

55-90DT
(11.2/10-20 front and 14.9/13-2 rear tyres)



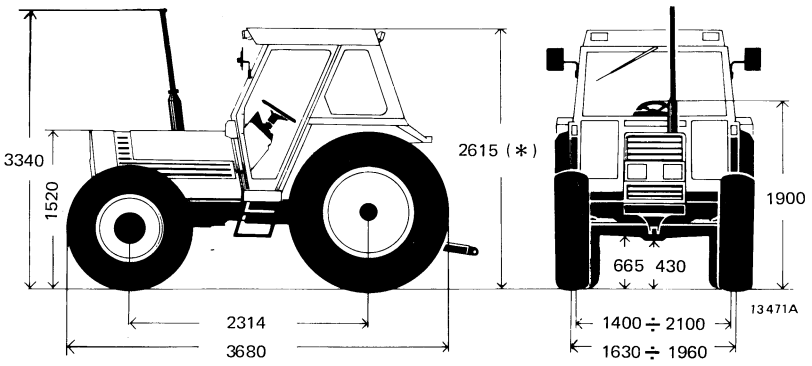
(*) 2495 with ROPS frame



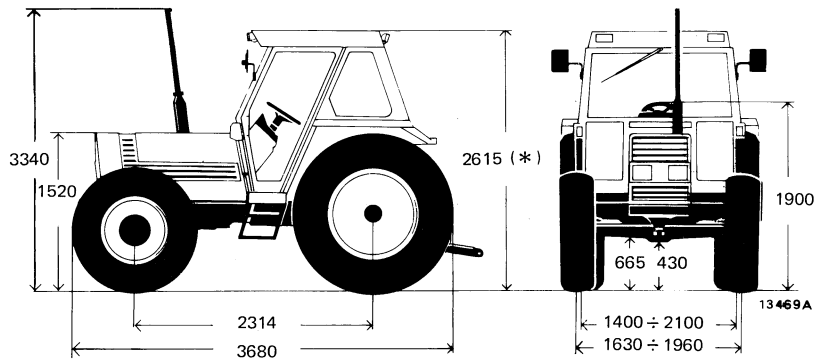
60-90DT
(9.5/9-24 front and 16.9/14-28 rear tyres)

(*) 2525 with ROPS frame

70-90DT
(11.2/10-28 front and 13.6/12-38 rear tyres)



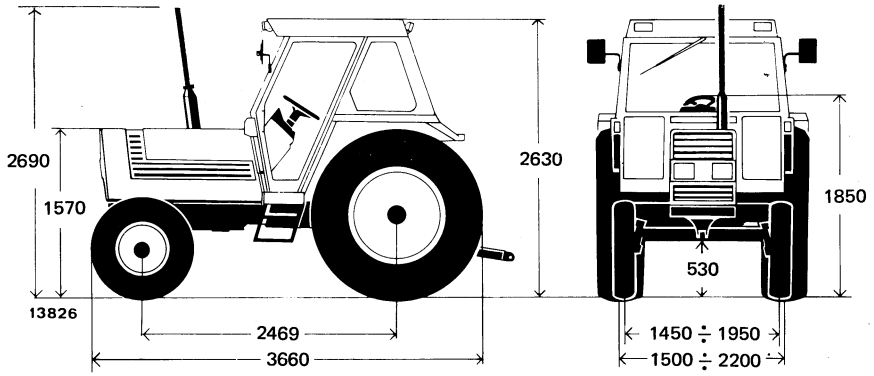
(*) 2600 with ROPS frame



80-90DT
(11.2/10-28 front and 13.6/12-38 rear tyres)

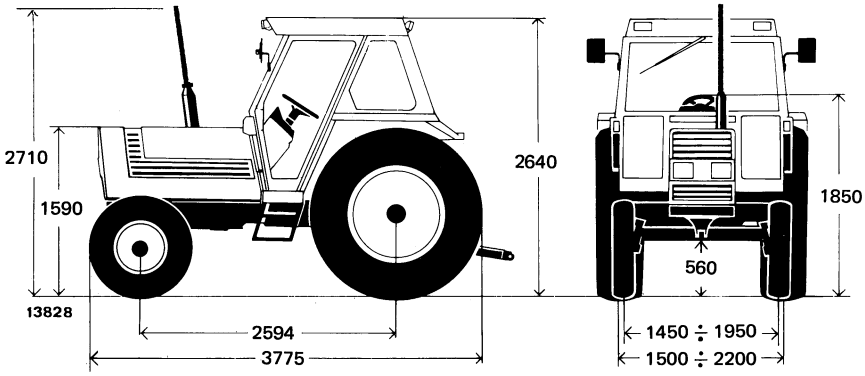
(*) 2600 with ROPS frame

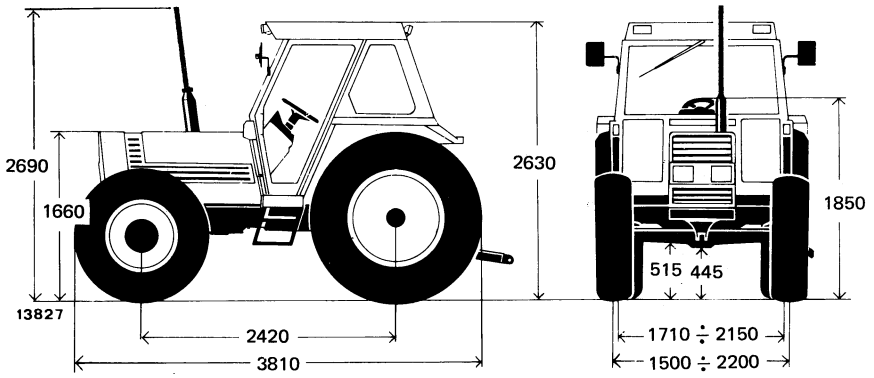
DIMENSIONS (in mm)



90-90
(7.50-20 front and 16.9/14-38 rear tyres)

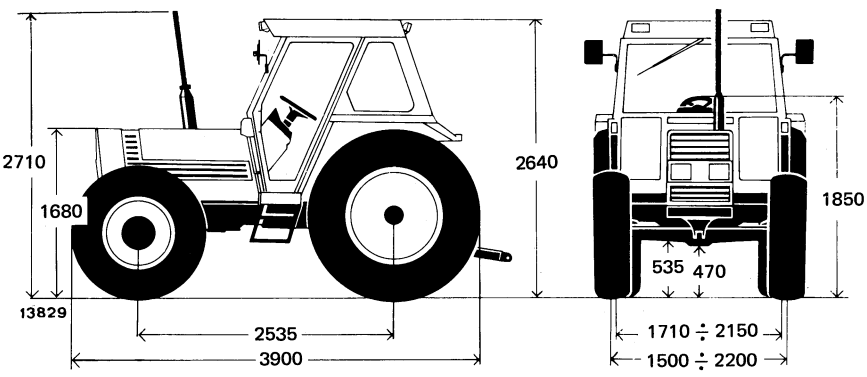
100-90
(7.50-20 front and 16.9/14-38 rear tyres)





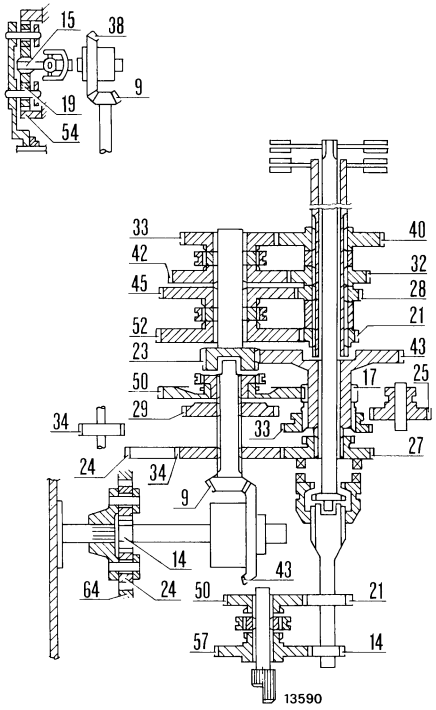
90-90DT
(13.6/12-24 front and 16.9/14-34 rear tyres)

100-90DT
(12.4/11-28 front and 16.9/14-38 rear tyres)

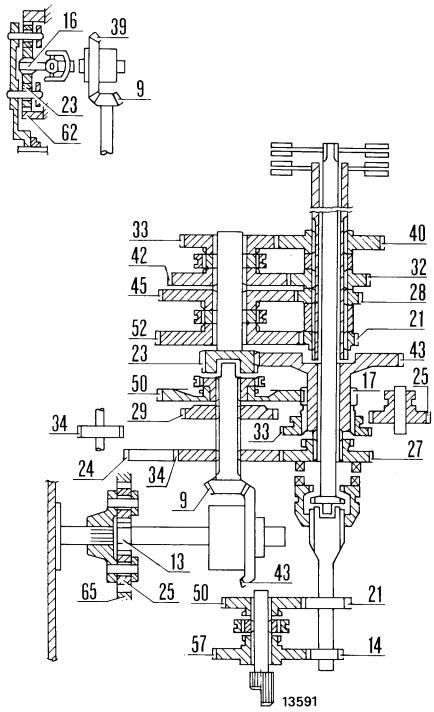


POWER TRAIN SCHEMATICS (standard 12 speed transmission)

55-90, 55-90DT, 60-90 and 60-90DT



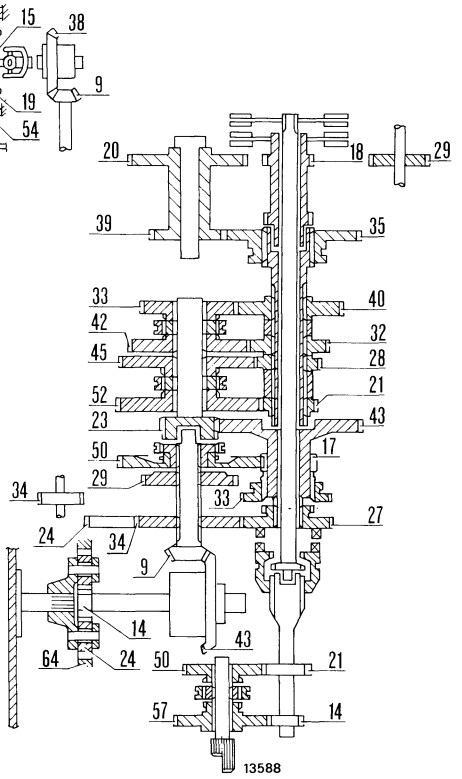
70-90, 70-90DT, 80-90 and 80-90DT



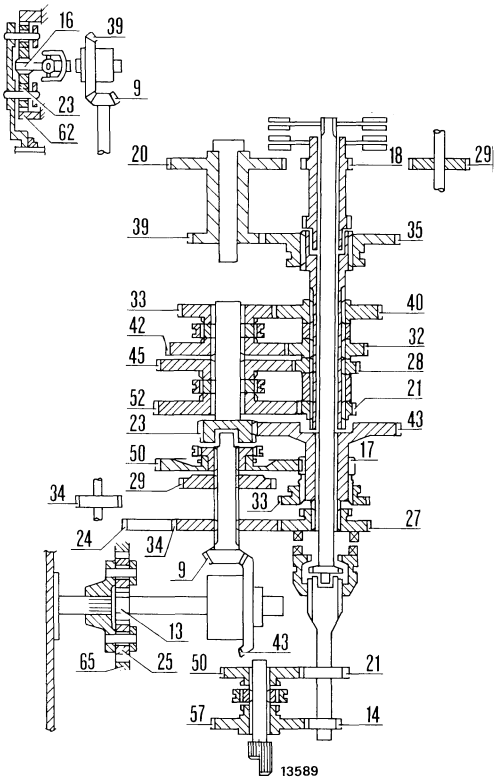
GEAR	Tractor speed, at max. engine output speed															
	55-90, 55-90DT		55-90, 55-90DT, 60-90, 60-90DT						60-90, 60-90DT		70-90, 70-90DT		70-90, 70-90DT, 80-90, 80-90DT			
	REAR TYRES															
	14.9/13-28		14.9/13-30		16.9/14-28		12.4/11-36		16.9/14-30		16.9/14-30		18.4/15-30		16.9/14-34 13.6/12-3	
	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph
1 Low	1.7	1.0	1.7	1,0	1,7	1,0	1,8	1.1	1.8	1.1	1.7	1.0	1.7	1.0	1.8	1.1
2 "	2.6	1.6	2.6	1,6	2,7	1,7	2.8	1.7	2.8	1.7	2.6	1.6	2.7	1.7	2.8	1.7
3 "	3.1	1.9	3,2	2,0	3,3	2,0	3.4	2.1	3.4	2.1	3.1	1.9	3.3	2.0	3.4	2.1
4 "	5.0	3.1	5,1	3,2	5,2	3,2	5.4	3.3	5.4	3.3	5.0	3.1	5.2	3.2	5.4	3.3
1 Normal	3.9	2.4	4.0	2.5	4.1	2.5	4.2	2.6	4.2	2.6	3.9	2.4	4.1	2.5	4.2	2.6
2 "	6.0	3.7	6.2	3.8	6.3	3.9	6.5	4.0	6.4	4.0	6.0	3.7	6.3	3.9	6.5	4.0
3 "	7.3	4.5	7.6	4.7	7.7	4.8	8.0	5.0	7.9	4.9	7.3	4.5	7.7	4.8	7.9	4.9
4 "	11.7	7.3	12.0	7.4	12.2	7.6	12.7	7.9	12.6	7.8	11.7	7.3	12.3	7.6	12.6	7.8
1 High	9.1	5.6	9.4	5.8	9.6	6.0	9.9	6.1	9.9	6.1	9.2	5.7	9.6	6.0	9.9	6.1
2 "	14.1	8.8	14.5	9.0	14.8	9.2	15.3	9.5	15.2	9.4	14.1	8.8	14.8	9.2	15.2	9.4
3 "	17.3	10.7	17.8	11.1	18.1	11.2	18.7	11.6	18.6	11.5	17.3	10.7	18.2	11.3	18.7	11.6
4 "	27.5	17.1	28.3	17.6	28.7	17.8	29.8	18.5	29.6	18.4	27.5	17.1	28.9	18.0	29.7	18.4
1 Reverse	4.3	2.7	4.4	2.7	4.5	2.8	4.7	2.9	4.6	2.8	4.3	2.7	4.5	2.8	4.6	2.8
2 "	6.6	4.1	6.8	4.2	6.9	4.3	7.2	4.5	7.1	4.4	6.6	4.1	7.0	4.3	7.2	4.5
3 "	8.1	5.6	8.4	5.2	8.5	5.3	8.8	5.5	8.7	5.4	8.1	5.0	8.5	5.3	8.8	5.5
4 "	12.9	8.0	13.3	8.3	13.5	8.4	14.0	8.7	13.9	8.6	12.9	8.0	13.6	8.4	13.9	8.6

POWER TRAIN SCHEMATICS (with reverser)

55-90, 55-90DT, 60-90 and 60-90DT



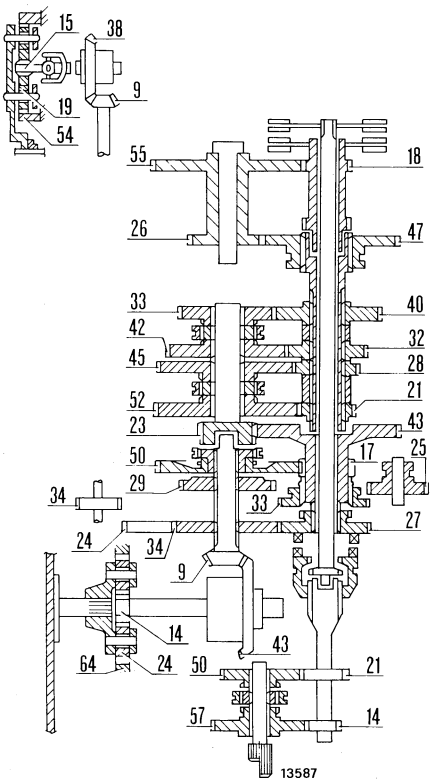
70-90, 70-90DT, 80-90 and 80-90DT



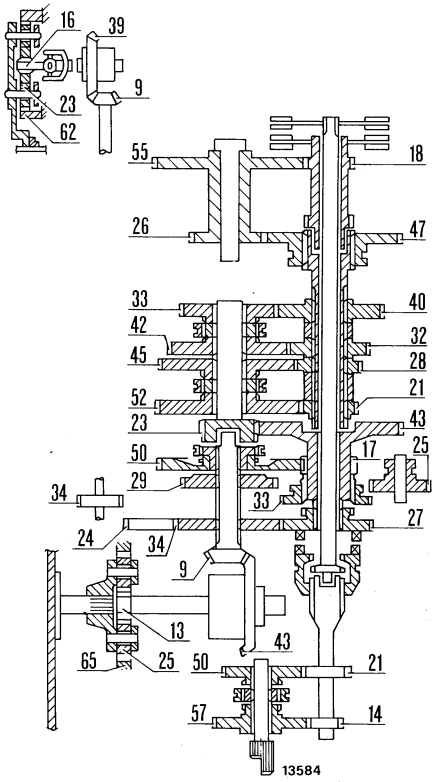
GEAR	Tractor speed, at max. engine output speed															
	55-90, 55-90DT		55-90, 55-90DT, 60-90, 60-90DT						60-90, 60-90DT		70-90, 70-90DT		70-90, 70-90DT, 80-90, 80-90DT			
	REAR TYRES															
	14.9/13-28		14.9/13-30		16.9/14-28		12.4/11-36		16.9/14-30		16.9/14-30		18.4/15-30		16.9/14-34 13.6/12-38	
	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph
1 Low	1.7	1.0	1.7	1.0	1.7	1.0	1.8	1.1	1.8	1.1	1.7	1.0	1.8	1.1	1.8	1.1
2 "	2.6	1.6	2.6	1.6	2.7	1.7	2.8	1.7	2.8	1.7	2.6	1.7	2.7	1.7	2.8	1.7
3 "	3.1	1.9	3.2	2.0	3.3	2.0	3.4	2.1	3.4	2.1	3.1	1.9	3.3	2.0	3.4	2.1
4 "	5.0	3.1	5.2	3.2	5.2	3.2	5.4	3.3	5.4	3.3	5.0	3.1	5.3	3.3	5.4	3.3
1 Normal	3.9	2.4	4.0	2.5	4.1	2.5	4.2	2.6	4.2	2.6	3.9	2.4	4.1	2.5	4.2	2.5
2 "	6.0	3.7	6.2	9.8	6.3	3.9	6.5	4.0	6.5	4.0	6.1	3.8	6.3	3.9	6.5	4.0
3 "	7.3	4.5	7.6	4.7	7.7	4.8	8.0	5.0	7.9	4.9	7.4	4.6	7.7	4.8	7.9	4.9
4 "	11.7	7.3	12.1	7.5	12.2	7.6	12.7	7.9	12.6	7.8	11.7	7.3	12.3	7.6	12.6	7.8
1 High	9,2	5.7	9,5	5.9	9,6	6.0	10,0	6.2	9,9	6.1	9,2	5.7	9,6	6.0	9,9	6.1
2 "	14,1	8.8	14,6	9.1	14,8	9.2	15,4	9.6	15,2	9.4	14,2	8.8	14,9	9.2	15,3	9.5
3 "	17,3	10.7	17,9	11.1	18,1	11.2	18,8	11.7	18,7	11.6	17,3	10.7	18,2	11.3	18,7	11.6
4 "	27,5	17.1	28,4	17.6	28,8	17.9	29,9	17.9	29,7	18.4	27,6	17.1	29,0	18.0	29,8	18.5

POWER TRAIN SCHEMATICS (creeper version)

55-90, 55-90DT, 60-90 and 60-90DT

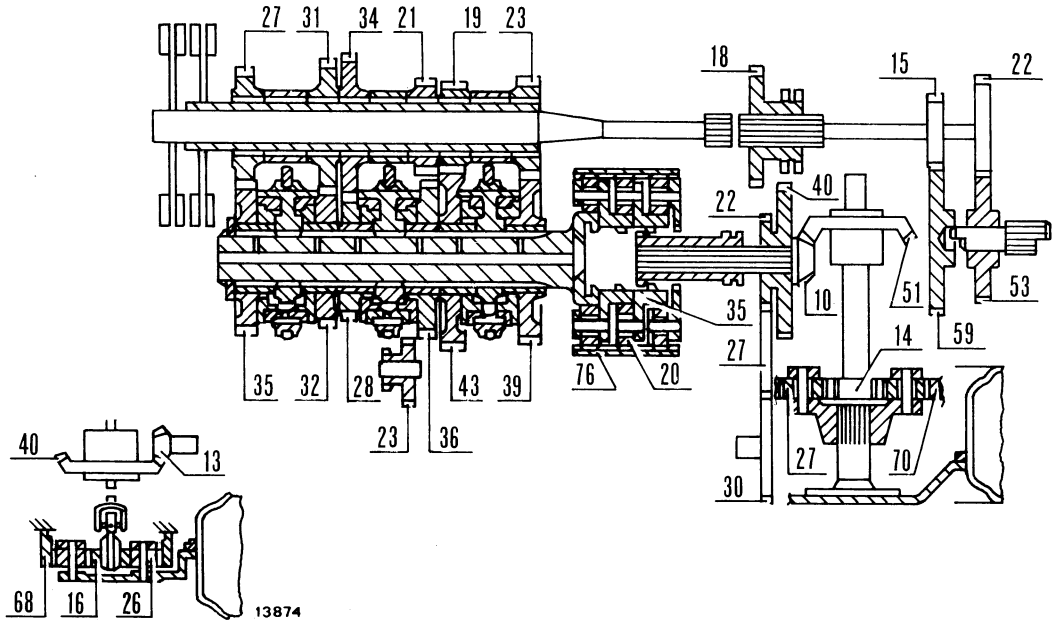


70-90, 70-90DT, 80-90 and 80-90DT



Tractor speed, at max. engine output speed																
GEAR	55-90, 55-90DT		55-90, 55-90DT, 60-90, 60-90DT						60-90, 60-90DT		70-90, 70-90DT		70-90, 70-90DT, 80-90, 80-90DT			
	REAR TYRES															
	14.9/13-28		14.9/13-30		16.9/14-28		12.4/11-36		16.9/14-30		16.9/14-30		18.4/15-30		16.9/14-34 13.6/12-38	
	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph
1 Low creeper	0,3	0.2	0,3	0.2	0,3	0.2	0,3	0.2	0,3	0.2	0,3	0.2	0,3	0.2	0,3	0.2
2 "	0,5	0.3	0,5	0.3	0,5	0.3	0,5	0.3	0,5	0.3	0,5	0.3	0,5	0.3	0,5	0.3
3 "	0,6	0.4	0,6	0.4	0,6	0.4	0,6	0.4	0,6	0.4	0,6	0.4	0,6	0.4	0,6	0.4
4 "	0,9	0.5	0,9	0.5	0,9	0.5	1,0	0.5	1,0	0.6	0,9	0.5	0,9	0.5	1,0	0.6
1 Normal creeper	0,7	0.4	0,7	0.4	0,7	0.4	0,8	0.5	0,7	0.4	0,7	0.4	0,7	0.4	0,8	0.5
2 "	1,1	0.7	1,1	0.7	1,1	0.7	1,2	0.7	1,2	0.7	1,1	0.7	1,1	0.7	1,2	0.7
3 "	1,3	0.8	1,4	0.9	1,4	0.9	1,4	0.9	1,4	0.9	1,3	0.8	1,4	0.9	1,4	0.9
4 "	2,1	1.3	2,2	1.4	2,2	1.4	2,3	1.4	2,3	1.4	2,1	1.3	2,2	1.4	2,3	1.4
1 Low	1,7	1.0	1,7	1.0	1,7	1.0	1,8	1.1	1,8	1.1	1,7	1.0	1,7	1.0	1,8	1.1
2 "	2,6	1.6	2,6	1.6	2,7	1.7	2,8	1.7	2,8	1.7	2,6	1.6	2,7	1.7	2,8	1.7
3 "	3,1	1.9	3,2	2.0	3,3	2.0	3,4	2.1	3,4	2.1	3,1	1.9	3,3	2.0	3,4	2.1
4 "	5,0	3.1	5,1	3.2	5,2	3.2	5,4	3.3	5,4	3.3	5,0	3.1	5,2	3.2	5,4	3.3
1 Normal	3,9	2.4	4,0	2.5	4,1	2.5	4,2	2.6	4,2	2.6	3.9	2.4	4,1	2.5	4,2	2.5
2 "	6,0	3.7	6,2	9.8	6,3	3.9	6,5	4.0	6,4	4.0	6.0	3,7	6,3	3.9	6,5	4.0
3 "	7,3	4.5	7,6	4.7	7,7	4.8	8,0	5.0	7,9	4.9	7.3	4.5	7,7	4.8	7,9	4.9
4 "	11,7	7.3	12,0	7.4	12,2	7.6	12,7	7.9	12,6	7.8	11.7	7.3	12,3	7.6	12,6	7.8
1 High	9,1	5,6	9,4	5.8	9.6	6.0	9,9	6.1	9,9	6.1	9,2	5.7	9,6	6.0	9.9	6.1
2 "	14,1	8.8	14,5	9.0	14,8	9.2	15,3	9.5	15,2	9.4	14,1	8.8	14,8	9.2	15,2	9.4
3 "	17,3	10.7	17,8	11.1	18,1	11.2	18,7	11.6	18,6	11.5	17,3	10.7	18,2	11.3	18,7	11.6
4 "	27,5	17.1	28,3	17.6	28,7	17.8	29,8	18.5	29,6	18.4	27,5	17.1	28,9	18.0	29,7	18.4
1 Low reverse	0,8	0.5	0,8	0.5	0,8	0.5	0,8	0.5	0,8	0.5	0,8	0.5	0,8	0.5	0,8	0.5
2 "	1,2	0.7	1,2	0.7	1,2	0.7	1,3	0.8	1,3	0.8	1,2	0.7	1,3	0.8	1,3	0.8
3 "	1,5	0.9	1,5	0.9	1,5	0.9	1,6	1.0	1,6	1.0	1,5	0.9	1,5	0.9	1,6	1.0
4 "	2,3	1.4	2,4	1.5	2,4	1.5	2,5	1.5	2,5	1.5	2,3	1.4	2,4	1.5	2,5	1.5
1 High reverse	4,3	2.7	4,4	2.7	4,5	2.8	4,7	2.9	4,6	2.8	4,3	2.7	4,5	2.8	4,6	2.8
2 "	6,6	4.1	6,8	4.2	6,9	4.3	7,2	4.5	7,1	4.4	6,6	4.1	7,0	4.3	7,2	4.5
3 "	8,1	5.6	8,4	5.2	8,5	5.3	8,8	5.5	8,7	5.4	8,1	5.0	8,5	5.3	8,8	5.5
4 "	12,9	8.0	13,3	8.3	13,5	8.4	14,0	8.7	13,9	8.6	12,9	8.0	13,6	8.4	13,9	8.6

POWER TRAIN SCHEMATICS (creeper version)
90-90, 90-90DT, 100-90 and 100-90DT

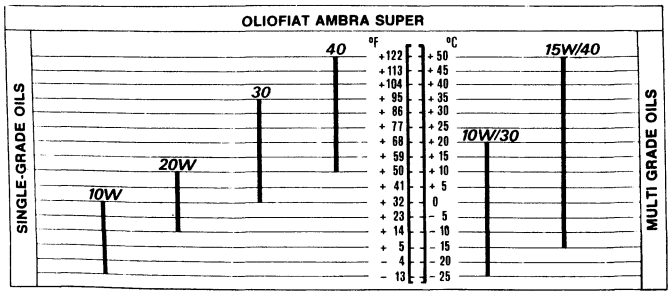


Tractor speed, at max. engine output speed:							
GEAR		90-90, 90-90 DT		90-90, 90-90 DT, 100-90, 100-90DT			
		REAR TYRES					
		16.9/14-34		18.4/15-34		16.9/14-38	
		kpm	mph	kpm	mph	kpm	mph
Creeper (°)	1	0.3	0.2	0.3	0.2	0.3	0.2
	2	0.4	0.2	0.4	0.2	0.4	0.2
	3	0.5	0.3	0.6	0.4	0.6	0.4
	4	0.6	0.4	0.7	0.4	0.7	0.4
	5	0.8	0.5	0.9	0.5	0.9	0.5
	REV	0.4	0.2	0.4	0.2	0.4	0.2
1Low	1	1.0	0.6	1.1	0.7	1.1	0.7
	2	1.3	0.8	1.3	0.8	1.4	0.9
	3	1.8	1.1	1.8	1.1	1.9	1.2
	4	2.2	1.4	2.3	1.4	2.4	1.5
	5	2.8	1.7	2.9	1.8	3.0	1.9
	REV	1.3	0.8	1.3	0.8	1.4	0.9
Normal	1	3.2	2.0	3.3	2.0	3.4	2.1
	2	4.3	2.7	4.4	2.7	4.6	2.8
	3	5.6	3.5	5.8	3.6	6.0	3.7
	4	7.0	4.3	7.3	4.5	7.5	4.7
	5	8.7	5.4	9.1	5.6	9.4	5.8
	REV	4.2	2.6	4.3	2.7	4.5	2.8
High	1	10.1	6.3	10.5	6.5	10.9	6.8
	2	13.5	8.4	14.0	8.7	14.5	9.0
	3	17.7	11.0	18.5	11.5	19.1	11.9
	4	22.2	13.8	23.1	14.3	23.9	14.8
	5	27.8	17.3	29.0	18.0	29.9	18.6
	REV	13.4	8.3	13.9	8.6	14.4	8.9

(°) Creeper version only.

DESCRIPTION	FIAT RECOMMENDED PRODUCTS	LIQUID AND LUBRICANTS CAPACITY 55-90 dm³ (litres)	55-90 gall.	55-90 kg	60-90 dm³ (litres)	60-90 gall.	60-90 kg	70-90 dm³ (litres)	70-90 gall	70-90 kg	80-90 dm³ (litres)	80-90 gall	80-90 kg	90-90 dm³ (litres)	90-90 gall	90-90 kg	100-90 dm³ (litres)	100-90 gall	100-90 kg	International Designation
Sump and filter oil	**Oliofiat AMBRA SUPER** (see table below)	7.5	1½	6.8	7.5	1½	6.8	11.7	2½	10.5	11.7	2½	10.5	13.7	3	12.4	13.6	2¾	12.2	Diesel engine oil to MIL-L-2104 D and Service API CD
Sump oil		6.7	1½	6	6.7	1½	6	10.5	2⅓	9.5	10.5	2⅓	9.5	12.1	2½	10.9	11.7	2½	10.5	
Air cleaner oil		0.8	1⅔ pints	0.7	0.8	1⅔ pints	0.7	0.8	1⅔ pints	0.7	0.8	1⅔ pints	0.7	1.9	½	1.7	1.9	½	1.7	
Power steering circuit oil	**Oliofiat TUTELA MULTI F**	2.0	½	1.8	2.0	½	1.8	2.0	½	1.8	2.0	½	1.8	1.7	½	1.5	1.7	½	1.5	Transmission, oil bath, brakes and lift oil to Massey Ferguson MF1135 and Ford M2C 86A
Transmission oil		—	—	—	—	—	—	—	—	—	—	—	—	11.7	2 ½	10.5	11.7	2 ½	10.5	
Live front axle oil:																				
— Axle casing		4.3	¾	3.9	4.3	¾	3.9	6.1	1⅓	5.5	6.1	1⅓	5.5	6	1⅓	5.4	6	1⅓	5.4	
— Planetary drives (each)		0.8	1⅔ pints	0.7	0.8	1⅔ pints	0.7	1.2	½	1.1	1.2	½	1.1	1.7	½	1.5	1.7	½	1.5	
Rear transmission (transmission, bevel drive, brakes, final drives and lift oil) for 55-90, 60-90, 70-90 and 80-90 or (Bevel drive, brakes, final drives and lift oil for 90-90 and 100-90).																				
— 2-wheel drive		50	11	45	50	11	45	54	11¾	48.5	54	11¾	48.5	44.5	9¾	40	44.5	9.¾	40	
— 4-wheel drive		50.5	11⅓	45.5	50.5	11⅓	45.5	54.4	11¾	49	54.4	11¾	49	45.6	10	41	45.6	10	41	
Brake fluid	**AMBRA SUPER 10 W**	0.45	¾ pint	0.4	0.45	¾ pint	0.4	0.45	¾ pint	0.4	0.45	¾ pint	0.4	0.8	1⅔ pints	0.7	0.8	1⅔ pints	0.7	Oil to MIL-L-2104 D and API CD-SAE 10 W
Front wheel hub oil	**Grassofiat TUTELA G9**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Lithium - calcium grease to NLGI No. 2
Pressure lubricators		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Coolant (1)	Water and FIAT **"PARAFLU 11"**	12	2½	—	12	2½	—	14	3	—	14	3	—	18	3¾	—	20	4½	—	—
Windshield washer fluid	Water and **"DP1"** (2)	2	½	—	2	½	—	2	½	—	2	½	—	2	½	—	2	½	—	—
Fuel																				
— Main tank	Diesel oil	~95	20¾	—	~95	20¾	—	~95	20¾	—	~95	20¾	—	~95	20¾	—	~95	20¾	—	—
—Auxiliary tank		—	—	—	—	—	—	—	—	—	—	—	—	37	—	—	37	—	—	

(1) Including expansion tank. Cab versions: add 2 litres or 3 pints for 55-90, 60-90, 70-90 and 80-90, or 3 litres (5 pints) for 90-90 and 100-90.
(2) Detergent fluid effective down to -10°C in 50-50 mixture. For temperatures below - I use DPI without water.



ENGINE BLOCK - CYLINDER HEAD

	mm	
	55-90, 70-90, 100-90	**60-90, 80-90, 90-90**
Engine Block		
Cylinder bore diameter in engine block	102.850 to 102.900 mm (4.049 to 4.051 in)	106.850 to 106.900 mm (4.206 to 4.208 in)
Sleeve O.D.	103.020 to 103.050 mm (4.056 to 4.057 in)	107.020 to 107.050 mm (4.213 to 4.215 in)
Sleeve interference fit in block	0.120 to 0.200 mm (0.005 to 0.008 in)	
Sleeve diameter oversize	0.2 mm (0.008 in)	

	mm		in	
	55-90, 70-90, 100-90	**60-90, 80-90, 90-90**	**55-90, 70-90, 100-90**	**60-90, 80-90, 90-90**
Sleeve bore diameter	100.000 to 100.024(1)	104.000 to 104.024(1)	3.937 to 3.938	4.094 to 4.095
Maximum ovality and taper due to wear (2)	0.12		0.005	
Sleeve bore oversize	0.4 - 0.8		0.016 - 0.031	
Camshaft bushing housing bore diameter				
55-90, 60-90, 70-90 and 80-90 — Front	54.780 to 54.805		2.1567 to 2.1577	
55-90, 60-90, 70-90 and 80-90 — Intermediate	54.280 to 54.305		2.1370 to 2.1379	
55-90, 60-90, 70-90 and 80-90 — Rear	53.780 to 53.805		2.1173 to 2.1183	
90-90 and 100-90 — Front	55.280 to 55.305		2.1764 to 2.1774	
90-90 and 100-90 — Intermediate front	54.780 to 54.805		2.1567 to 2.1577	
90-90 and 100-90 — Intermediate rear	54.280 to 54.305		2.1370 to 2.1379	
90-90 and 100-90 — Rear	53.780 to 53.805		2.1173 to 2.1183	
Tappet housing bore diameter	15.000 to 15.018		0.590 to 0.591	
Tappet oversize	0.1 - 0.2 - 0.3		0.004 - 0.008 - 0.012	
Main bearing housing bore diameter	84.200 to 84.230		3.3149 to 3.3161	
Cylinder head				
Valve guide housing bore diameter in head	13.950 to 13.983		0.5492 to 0.5505	
Valve guide oversize	0.2		0.0079	
Valve seat dimensions	Section 12, page 2			
Valve stand-in	0.7 to 1.0		0.027 to 0.039	
— Maximum stand-in allowed	1.3		0.051	
Injector stand-out	0.05 to 0.7		0.002 to 0.027	
— Maximum stand-out allowed	1.0		0.039	
Cylinder head height	92		3.622	
Maximum head skimming depth	0.5		0.020	

(1) After reaming.
(2) Measure in ring swept area, parallel and perpendicular to engine centerline.

CRANK GEAR

	mm		in	
	55-90, 70-90, 100-90	60-90, 80-90, 90-90	55-90, 80-90, 100-90	60-90, 80-90, 90-90
Crankshaft - Bearings				
Main journal diameter	79.791 to 79.810 (1)		3.1413 to 3.1421	
Main journal undersize	0.254-0.508-0.762-1.016		0.0099 - 0.0199 - 0.0299 - 0.0399	
Main bearing wall thickness	2.168 to 2.178		0.0853 to 0.0857	
Main bearing undersize	0.254-0.508-0.762-1.016		0.0099 - 0.0199 - 0.0299 - 0.0399	
Main journal clearance in bearings	0.034 to 0.103		0.0013 to 0.0040	
— Maximum wear clearance	0.180		0.0071	
Crankpin diameter	63.725 to 63.744 (1)		2.5088 to 2.5096 (1)	
Crankpin undersize	0.254-0.508-0.762-1.016		0.0099 - 0.0199 - 0.0299 - 0.0399	
Big end bearing wall thickness	1.805 to 1.815		0.0710 to 0.0715	
Big end bearing undersize	0.254-0.508-0.762-1.016		0.0099 - 0.0199 - 0.0299 - 0.0399	
Crankpin clearance in big end bearing	0.033 to 0.087		0.0012 to 0.0034	
— Maximum wear clearance	0.180		0.0071	

Crankshaft thrust washer thickness	3.378 to 3.429 mm (0.1329 to 0.1349 in)
Thrust washer oversize	0.127-0.254-0.381-0.508 (0.0049 -0.0099 - 0.0149 - 0.0199)
Width of main bearing housing over thrust washers	31.766 to 31.918 mm (1.2506 to 1.2566 in)
Length of corresponding main journal	32.000 to 32.100 mm (1.2598 to 1.2638 in)
Crankshaft end float	0.082 to 0.334 mm (0.0032 to 0.0131 in)
— Maximum wear end float	0.40 mm (0.016 in)
Maximum main journal and crankpin ovality or taper after grinding	0.01 mm (0.0004 in)
Maximum main journal and crankpin ovality or taper due to wear	0.05 mm (0.0019 in)
Maximum main journal misalignment with crankshaft resting on end journals	0.10 mm (0.0039 in)

(follows)

(1) 0.1 mm undersize crankpin and main journal crankshafts may be fitted in production coupled to corresponding undersize bearings.