FIATALLIS®

FiatTrattori
FIAT

1180 - 1280 - 1380
1580 - 1880

Form Number 06910064

WORKSHOP MANUAL

Fiat Trattori
FIAT

1180 - 1280 - 1380
1580 - 1880

WORKSHOP MANUAL

QUICK REFERENCE INDEX

D I R E Z I O N E C O M M E R C I A L E

FOREWORD

- *The manual is divided into separately numbered sections.*
- *Two-digit sections contain:*
  - *— tractor specification (00);*
  - *— tractor sub-assembly specification and data (10 Engine, 20 Power Train, etc.).*
- *Three-digit sections deal with the overhaul of the sub-assemblies whose data are listed in the two-digit sections. The first two digits are the same as those of the associated data sections (e.g. 20; Power Train; 201 - Clutch 202 - 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 603.54.220/01, second revision 603.54.220/02 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.*

The Imperial weights and measures are given for operators' convenience and though the closest approximation is sought, they are normally rounded off for practical reasons. In case of discrepancies only the metric units should be considered.

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C O N T E N T S

GENERAL: Index

SHIMS

When adjusting, measure each shim with 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 should a mallet of hammer be used for installation;
— 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, RHODORSHIL CAF 1 or LOCTITE PLASTIC GASKET.
Before applying the sealing compound, prepare the surfaces as follows:
— remove any deposits using a wire brush;
— thoroughly degrease using solvent, kerosene or hot water/soda solution.

BEARINGS

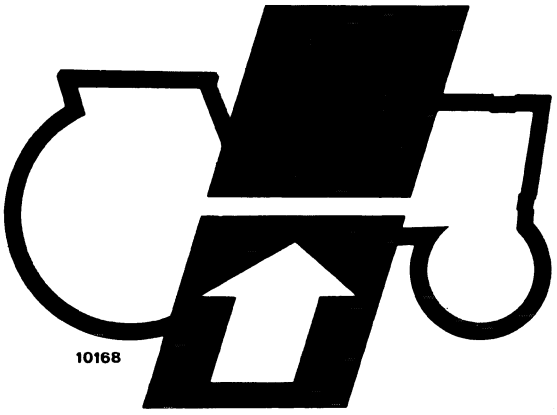
To install bearings:
— preheat to 80°C ÷ 90°C and slide over shaft;
— cool before pressing outer races home.

ROLL PINS

When fitting straight roll pins ensure that the split faces toward the direction of work stressing the pin.
Coil roll pins can be installed in any position.

SPARE PARTS

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



ricambi originali

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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 **FIAT 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.
- 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.
- 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 capacity.
- 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 opertor'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 staring 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 WTHOUT 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.
- Avoid running engine with open unprotected air inlets. If such running is unavoidable for service reasons, place protective screen over all inlet openings before servicing engine.

ELECTRICAL

- 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 sufficient force to penetrate the skin. Use a piece of carboard or wook 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.

1280 - PRELIMINARY INFORMATION

The section dealing with the 1280 tractor will be included in a later edition. Components of the recently marketed 1280 tractor are noted below, together with corresponding parts of 1180, 1180 H, 1380, 1580 and 1880 tractors covered in this manual which may be referred to in order to carry out most service operations.

Engine block - See 1180 and 1380
Cylinder head - See 1180
Crankshaft and bearings - See 1180 and 1380
Connecting rods - See 1180 and 1380
Pistons - See 1380.

Valve gear - See 1180 and 1380
Tappets - See 1180 and 1380
Rockers - See 1180 and 1380
Valves, guides and springs - See 1180

Oil pump - See 1180
Oil filter - See 1180 and 1380
Heat exchanger - See 1380

Water pump and thermostat - See 1180 and 1380
Fan - See 1380

Turbocharger type: GARRETT TO4B/Y7 1.00E.
Disassembly and overhaul: See 1380 tractor, GARRETT turbocharger. Equipment is the same.

Feed pump - See 1180

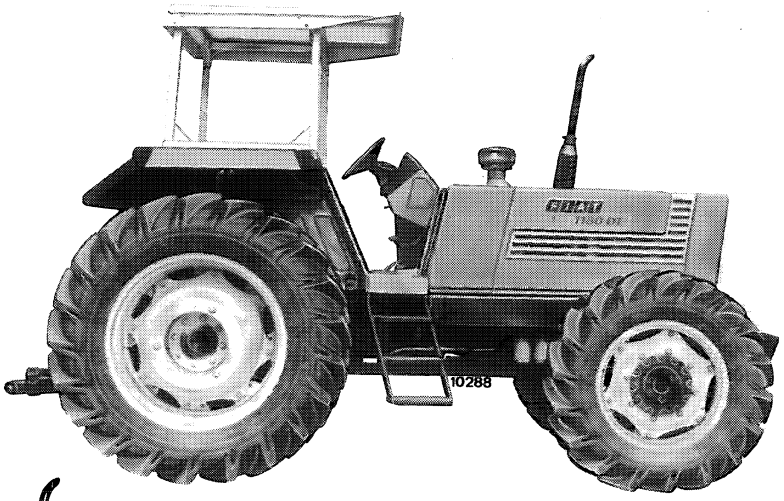
Injection pump type - CAV DPA 3362 F850 4762361
Calibration table - Page 18, Section 10
Performance data - Page 3, Section 100
Overhaul instructions - To be included in next edition.

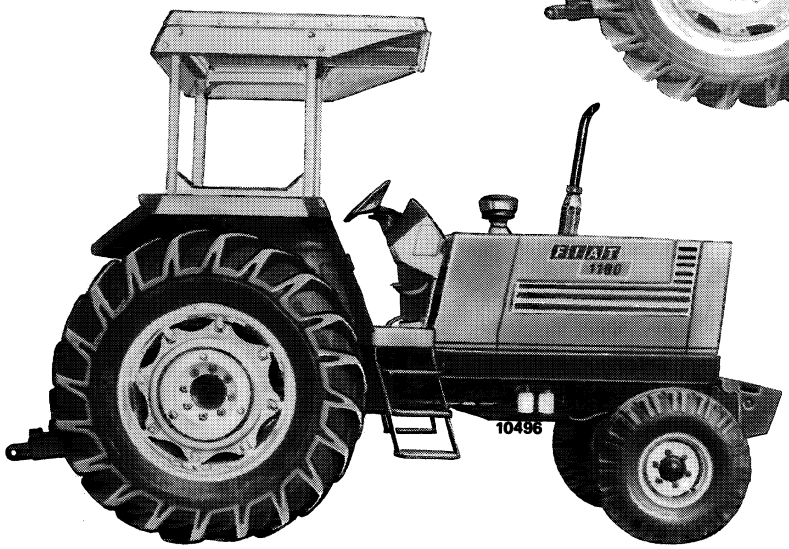
Injectors - See 1180 and 1380
Clutch - See 1380, 1580 and 1880
Transmission and splitter - See 1180, 1380, 1580 and 1880
Crawler and reverser - See 1180, 1380, 1580 and 1880
Bevel drive and differential - See 1380
Brakes - See 1180, 1380, 1580 and 1880
Final drives - See 1380
Power take-off - See 1380 and 1580.
P.T.O. Hydraulic pump - See 1380, 1580 and 1880
Front axle, power steering - See 1180, 1380, 1580 and 1880
Front wheel drive, axle drive - See 1380 DT
Lift - See 1180, 1380, 1580 and 1880
Lift pump - See 1380, 1580 and 1880
Electrical system - See 1180, 1380, 1580 and 1880.

Note. For adjustment of transmission, bevel drive, final drives, front wheel drive and hydraulic lift, use service tools described for 1180, 1380, 1580 and 1880 tractors, noting directions in the appropriate sections.

IDENTIFICATION DATA

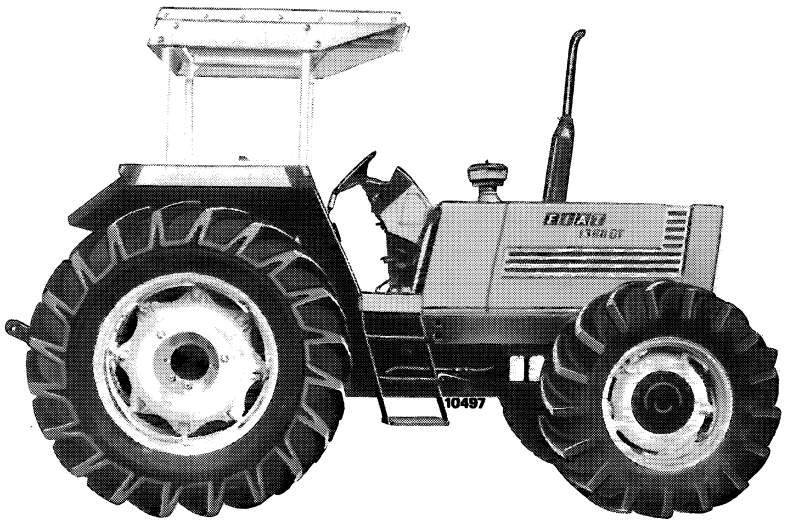
Marketing code:				
— 2-wheel drive	**1180**	**1380**	**1580**	**1880**
— 4-wheel drive	**1180 DT**	**1380 DT**	**1580 DT**	**1880 DT**
Engineering code:				
— 12-speed, 2-wheel drive	658.100.000	659.100.000	660.200.000	660.100.000
— 12-speed, 2-wheel drive with reverser	658.100.000 var. 720.110	659.100.000 var. 720.110	660.200.000 var. 720.110	660.100.000 var. 720.110
— 12-speed, 2-wheel drive with high speed bevel drive	658.100.000 var. 720.320	659.100.000 var. 720.320	—	—
— 24-speed, 2-wheel drive	658.100.000 var. 720.111	659.100.000 var. 720.111	660.200.000 var. 720.111	660.100.000 var. 720.111
— 24-speed, 2-wheel drive with high speed bevel drive	658.100.000 var. 720.111 + var. 720.320	659.100.000 var. 720.111 + var. 720.320	—	—

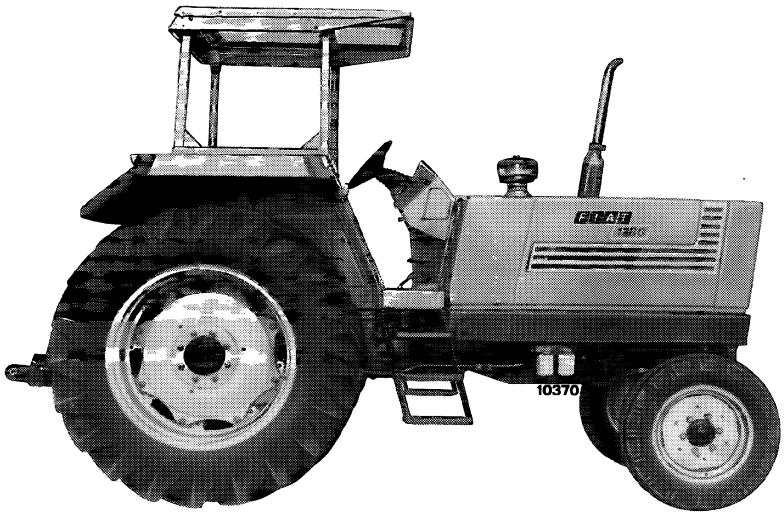




SPECIFICATION

	1180 1180 DT	1380 1380 DT	1580 1580 DT	1880 1880 DT
— 12-speed, 4-wheel drive	658.127.000	659.127.000	660.227.000	660.127.000
— 12-speed, 4-wheel drive with reverser	658.127.000 var. 720.110	659.127.000 var. 720.110	660.227.000 var. 720.110	660.127.000 var. 720.110
— 12-speed, 4-wheel drive with high speed bevel drive	658.127.000 var. 720.320	659.127.000 var. 720.320	—	—
— 24-speed, 4-wheel drive	658.127.000 var. 720.111	659.127.000 var. 720.111	660.227.000 var. 720.111	660.127.000 var. 720.111
— 24-speed, 4-wheel drive with high speed bevel drive	658.127.000 var. 720.111 + var. 720.320	659.127.000 var. 720.111 + var. 720.320	—	—

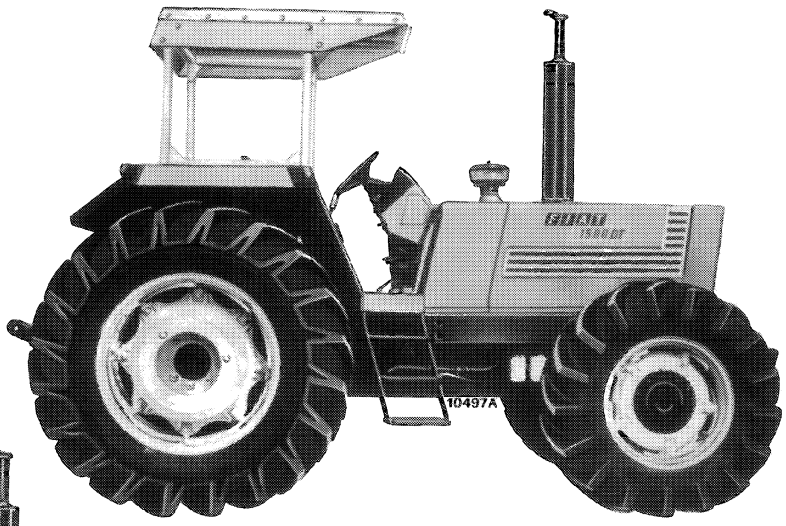


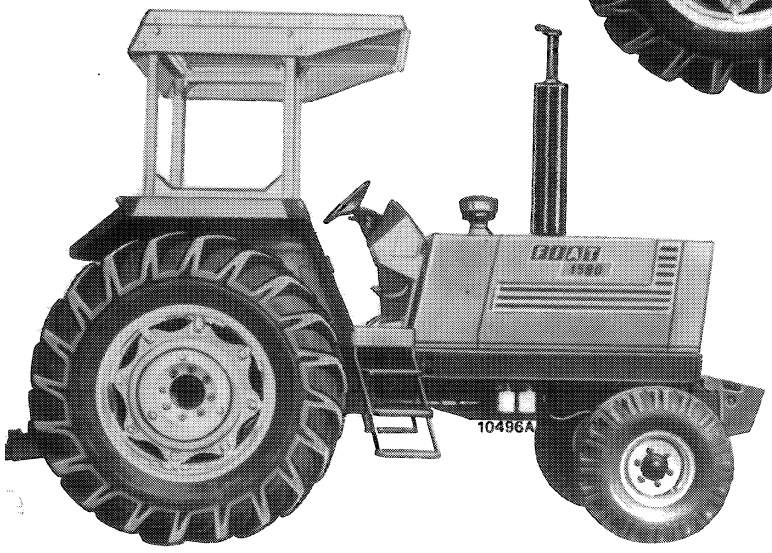


	1180 1180 DT	1380 1380 DT	1580 1580 DT	1880 1880 DT
Engine type (all versions)	FIAT Nat. aspirated 8065.04.217 (BOSCH pump)	FIAT Turbocharged	FIAT Nat. aspirated	FIAT Turbocharged
	FIAT Nat. aspirated 8065.04.317 (C.A.V. pump)	8065.24.000 (FIAT pump)	8365.05.500 (FIAT pump)	8365.25.500 (BOSCH pump)

WEIGHTS

Operating weight (including lift, implement attachment, tow hook and ROPS cab)				
— 2-wheel drive ..... kg	4450	5450	6000	6100
lb	9812	12,017	13,230	13,450
— 4-wheel drive ..... kg	4850	6050	6450	6550
lb	10,694	13,340	14,222	14,443





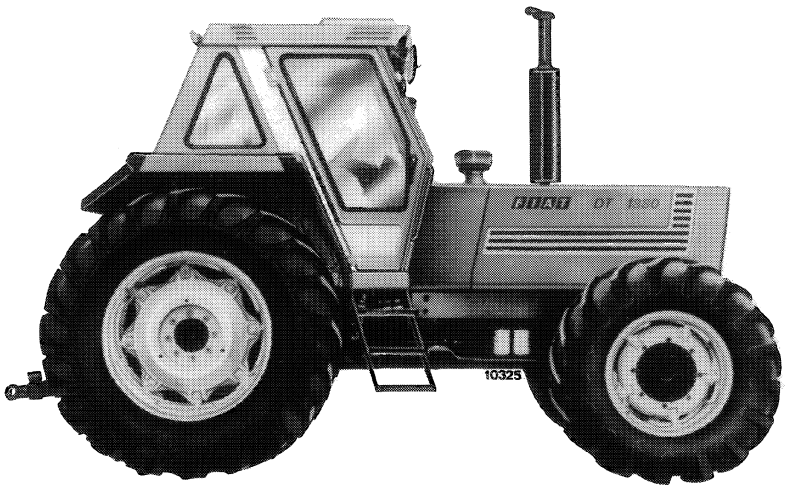
1180 H and 1180 DTH

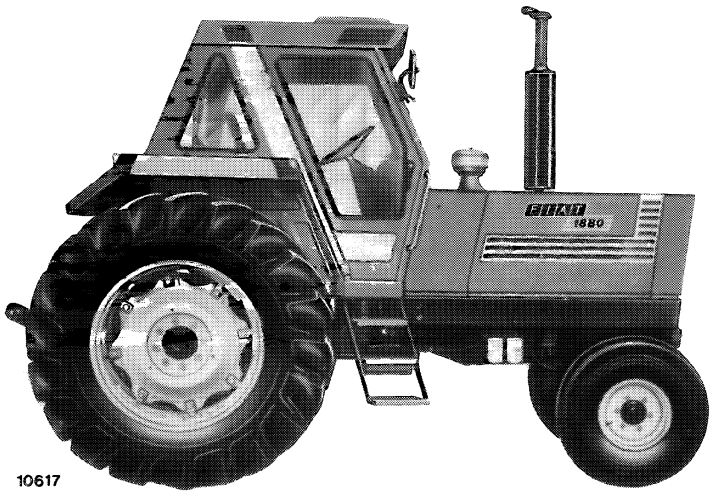
1180 H and 1180 DTH are designed for heavy duty application and differ from **1180** and **1180 DT** in that they incorporate the following features:

- 2-wheel drive: 14″ master clutch, multi-disc oil bath PTO clutch and release brake installed in the transmission housing, hydraulic differential lock and hydraulic pump with flow control valve to control both PTO clutch and differential lock 658.100.000
  var. 720.326

- 4-wheel drive: equipped with the same features as the 2-wheel drive plus front hydraulic differential lock 658.127.000
  var. 720.326

Note - In this manual, whenever the code numbers **1180 H** and **1180 DTH** are not indicated for service operations, refer to service operations for models **1180** or **1180 DT.**





ENGINE	1180 1180 DT	1380 1380 DT	1580 1580 DT	1880 1880 DT
Type	Nat. aspirated	Turbocharged	Nat. aspirated	Turbocharged
Injection	direct			
No. of cylinders	6			
Cylinder sleeves	dry, press fit		wet	
Bore x stroke	103 × 110 mm (4.05 × 4.33 in)		115 × 130 mm (4.53 × 5.12 in)	
Displacement	5499 cm^3		8102 cm^3	
Compression ratio	17 to 1	15.7 to 1	17 to 1	15.5 to 1
Max. horsepower DGM/DIN, metric	84.6 kW (115 HP)	99.4 kW (135 HP)	114.1 kW (155 HP)	132.5 kW (180 HP)
Max. output speed	2500 rpm	2400 rpm	2100 rpm	2100 rpm
Max. torque speed	1400 rpm	1600 rpm	1400 rpm	1400 rpm
Main bearings	7			
Sump	iron			
VALVE GEAR	OH valves, push rod operated			
Inlet — Opens B.T.D.C.	3°		8°	
Inlet — Closes A.B.D.C.	23°		60°	
Exhaust — Opens B.B.D.C.	48°30′		60°	
Exhaust — Closes A.T.D.C.	6°		8°	
Valve clearance — for timing check	.45 mm (.018 in)		.41 mm (.016 in)	
Normal — Inlet	.25 mm (.010 in)		.30 mm (.012 in)	
Normal — Exhaust	.35 mm (.014 in)		.50 mm (.020 in)	
FEED				
Air cleaner	dry, double cartridge, restriction indicator with centrifugal precleaner on hood			
Fuel filters (between pumps)	two, in line disposable paper cartridge (water separator with first filter)	two, in parallel, disposable paper cartridge (water separator integral with both filters) and bowl filter with mesh element on pump suction	two, in line, disposable paper cartridge (one paper, the other cloth) and bowl filter with mesh element on feed pump suction	

SPECIFICATION

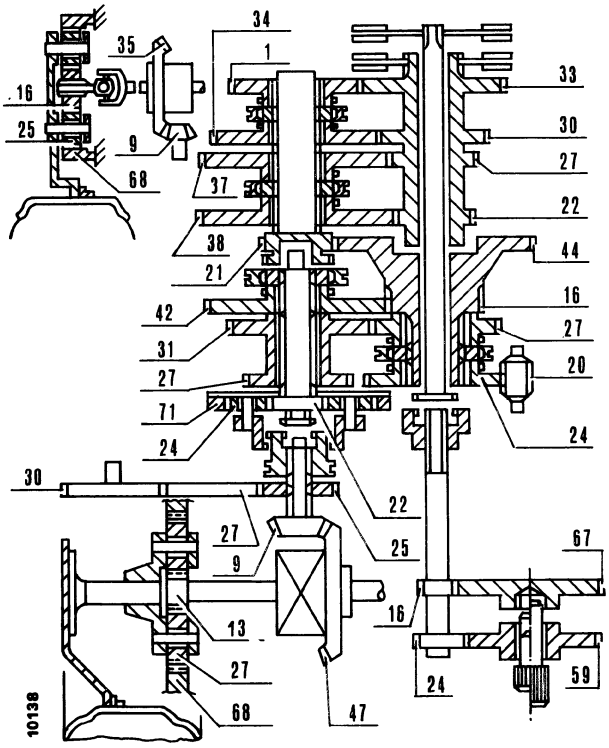
	1180 1180 DT	1380 1380 DT	1580 1580 DT	1880 1880 DT
Feed pump	double diaphragm	incorporated in injection pump		
— drive	cam	—		
Injection pump	distributing rotor with integral governor and automatic advance	in-line, integral governor and aneroid	in-line, integral governor	in-line, integral governor and aneroid
— type — BOSCH	EP/VA6/11H 1275CR185-3 4746605	—	—	PES6MW100 4754679
— type — FIAT	—	PES 6A 90B: L4/214- 4747763	PES 6A 90B 410:L4/217- 4750345	—
— type — C.A.V.	DPA 3362F640- 4756102	—	—	—
Integral all-speed governor:				
— BOSCH	hydraulic	—	—	centrifugal
— FIAT	—	centrifugal		—
— C.A.V.	centrifugal	—	—	—
Integral automatic advance	hydraulic	—	—	—
Fixed advance, at spill cut-off B.T.D.C.				
— BOSCH	15° ± 1°	—	—	20° ± 30′ (1) 15° ± 30′ (2)
— FIAT	—	28° ± 1°	25° ± 30′	—
— C.A.V.	14° ± 1°	—	—	—
Injection pump lubrication	fuel	engine oil		

(1) Early model up to engine 750749.
(2) Late model from engine 750750.

	1180 1180 DT	1380 1380 DT	1580 1580 DT	1880 1880 DT
Injector nozzles	3 orifice		4 orifice	
— injector type	see page 12, section 10			
— nozzle opening pressure	221 to 230 bar (225 to 235 kg/cm²) (3200 to 3342 psi)		200 to 208 bar (204 to 212 kg/cm²) (2959 to 3075 psi)	
Firing order	1 - 5 - 3 - 6 - 2 - 4			
Turbocharger, exhaust gas driven	—	GARRETT	—	HOLSET
— type	—	TO4B/Y7/ 0.84 E	—	3FJ-530 V/2 85 S4
— turbine and compressor shaft lubrication and cooling	—	engine oil	—	engine oil
LUBRICATION	force-feed, gear pump			
Pump drive	engine crankshaft			
Oil filters	gauze element on pump suction side and two full-flow cartridge on delivery side		gauze element on pump suction side and one full-flow cartridge on delivery side	
Pressure relief valve	integral, pump body		integral, filter body	
— oil pressure at governed speed	2.9 to 3.9 bar (3 to 4 kg/cm², 42 to 57 psi)		4.7 to 5.1 bar (4.8 to 5.2 kg/cm², 68 to 74 psi)	
Oil cooler	—	water flow		
— make	—	BEHR or LANGERER & REICH	BEHR or CHAUSSON	
COOLING SYSTEM	water, centrifugal pump			
Radiator	four row (early model) or five row (late model) vertical tubes			
Expansion tank	semi-transparent plastic			
Fan, installed on water pump pulley	suction, steel			
Temperature control	wax type thermostat			
TRACTOR METER	dashboard-mounted			
— drive	camshaft gear		camshaft drive gear	
— hourmeter activation speed	1800 rpm			
— meter to engine ratio	1 to 2			

POWER TRAIN SCHEMATICS

1180-1180 DT (12-24 speed)

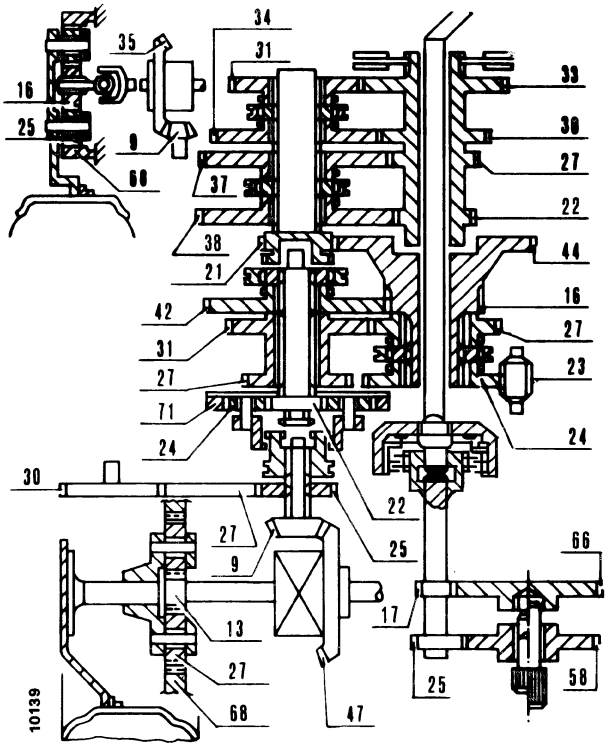


Tractor speeds at maximum engine speed						
GEARS	1180-1180 DT (12-24 speed) with rear tyres:					
	16.9/14-38		18.4/15-38		23.1/18-34	
	KPH	MPH	KPH	MPH	KPH	MPH
1ª low splitter	.6	.37	.6	.37	.6	.37
2ª »	.7	.43	.7	.43	.7	.43
3ª »	.9	.56	.9	.56	.9	.56
4ª »	1.0	.62	1.1	.68	1.1	.68
1ª normal splitter	1.3	.81	1.3	.81	1.3	.81
2ª »	1.6	.99	1.7	1.06	1.7	1.06
3ª »	2.0	1.24	2.0	1.24	2.1	1.30
4ª »	2.4	1.49	2.5	1.55	2.5	1.55
1ª high splitter	3.2	1.99	3.2	1.99	3.3	2.05
2ª »	4.0	2.49	4.1	2.55	4.1	2.55
3ª »	4.8	2.98	4.9	3.04	5.0	3.11
4ª »	5.8	3.60	5.9	3.67	6.0	3.73
1ª low	2.4	1.49	2.5	1.55	2.5	1.55
2ª »	3.0	1.86	3.1	1.93	3.2	1.99
3ª »	3.7	2.30	3.8	2.36	3.8	2.36
4ª »	4.5	2.80	4.5	2.80	4.6	2.86
1ª normal	5.6	3.48	5.7	3.54	5.8	3.60
2ª »	7.0	4.35	7.1	4.41	7.3	4.54
3ª »	8.5	5.28	8.6	5.34	8.8	5.47
4ª »	10.2	6.34	10.4	6.46	10.6	6.59
1ª high	13.4	8.33	13.6	8.45	13.9	8.64
2ª »	16.9	10.56	17.2	10.69	17.5	10.87
3ª »	20.4	12.68	20.8	12.93	21.2	13.17
4ª »	24.6	15.29	25.1	15.60	25.6	15.90
1ª reverse splitter	1.3	.81	1.4	.87	1.4	.87
2ª »	1.7	1.06	1.7	1.06	1.7	1.06
3ª »	2.0	1.24	2.1	1.30	2.2	1.37
4ª »	2.5	1.55	2.5	1.55	2.5	1.55
1ª reverse	5.7	3.56	5.8	3.60	5.9	3.67
2ª »	7.1	4.41	7.3	4.54	7.4	4.60
3ª »	8.6	5.34	8.8	5.47	9.0	5.59
4ª »	10.4	6.46	10.6	6.59	10.8	6.71

POWER TRAIN SCHEMATICS

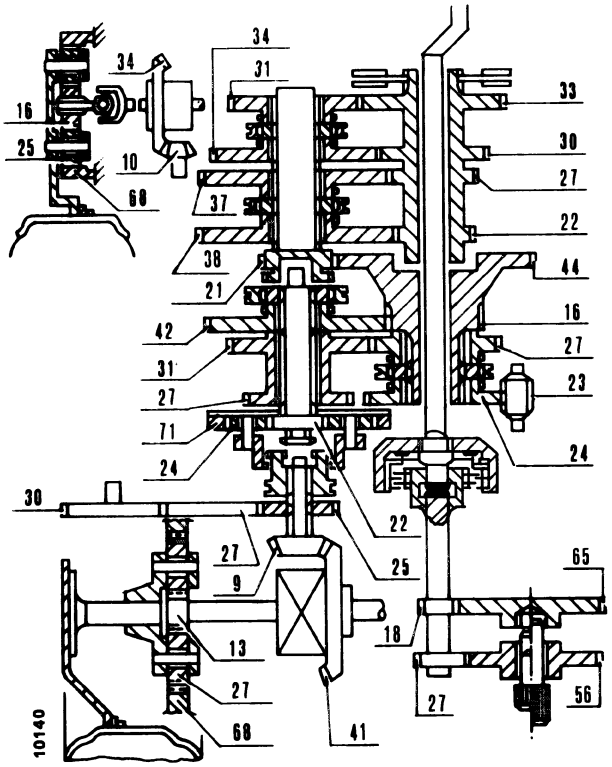
1380-1380 DT (12-24 speed version)

Tractor speeds at maximum engine speed						
GEARS	1380-1380 DT (12-24 speed) with rear tyres:					
	20.8/38		18.4/15-38		23.1/18-34	
	KPH	MPH	KPH	MPH	KPH	MPH
1ª low splitter	.6	.37	.6	.37	.6	.37
2ª »	.8	.50	.7	.43	.7	.43
3ª »	.9	.56	.9	.56	.8	.50
4ª »	1.1	.68	1.0	.62	1.0	.62
1ª normal splitter	1.4	.87	1.3	.81	1.3	.81
2ª »	1.7	1.06	1.6	.99	1.6	.99
3ª »	2.1	1.30	2.0	1.24	1.9	1.18
4ª »	2.5	1.55	2.4	1.49	2.4	1.49
1ª high splitter	3.3	2.05	3.2	1.99	3.1	1.93
2ª »	4.2	2.61	4.0	2.49	3.9	2.42
3ª »	5.1	3.17	4.8	2.98	4.7	2.92
4ª »	6.1	3.79	5.8	3.60	5.7	3.54
1ª low	2.5	1.55	2.4	1.49	2.4	1.49
2ª »	3.2	1.99	3.1	1.93	3.0	1.86
3ª »	3.9	2.42	3.7	2.30	3.6	2.24
4ª »	4.7	2.92	4.5	2.80	4.4	2.73
1ª normal	5.8	3.60	5.5	3.42	5.4	3.36
2ª »	7.3	4.54	7.0	4.35	6.8	4.23
3ª »	8.9	5.53	8.5	5.28	8.3	5.16
4ª »	10.7	6.65	10.2	6.34	10.0	6.21
1ª high	14.0	8.70	13.4	8.33	13.1	8.14
2ª »	17.7	11.00	16.8	10.44	16.5	10.25
3ª »	21.4	13.30	20.4	12.68	19.9	12.37
4ª »	25.8	16.03	24.6	15.29	24.0	14.91
1ª reverse splitter	1.4	.87	1.3	.81	1.3	.81
2ª »	1.8	1.12	1.7	1.06	1.6	0.99
3ª »	2.1	1.30	2.0	1.24	2.0	1.24
4ª »	2.6	1.62	2.5	1.55	2.4	1.49
1ª reverse	5.9	3.67	5.7	3.54	5.4	3.36
2ª »	7.5	4.66	7.1	4.41	7.0	4.35
3ª »	9.0	5.59	8.6	5.34	8.4	5.22
4ª »	10.9	6.77	10.4	6.46	10.2	6.34



POWER TRAIN SCHEMATICS

1580-1580 DT (12-24 speed version)

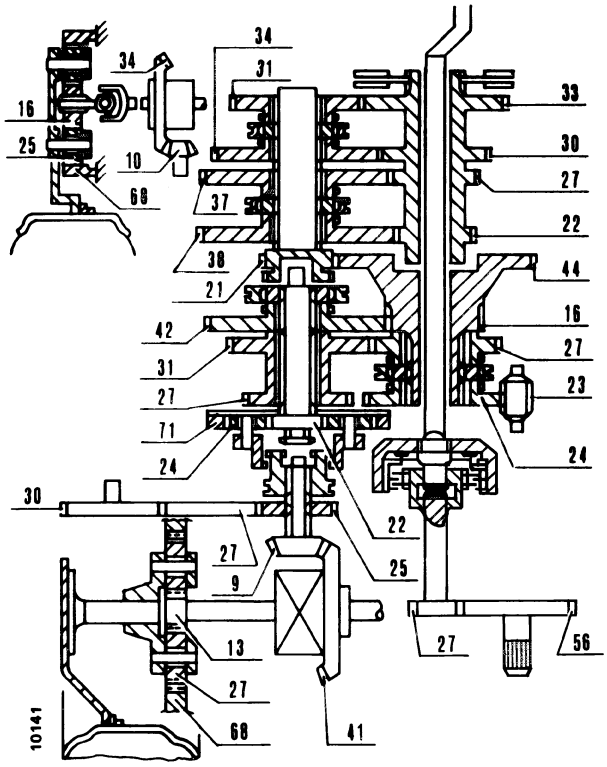


Tractor speeds at maximum engine speed						
GEARS	1580-1580 DT (12-24 speed) with rear tyres:					
	23.1/18-34		18.4/15-38		20.8/38	
	KPH	MPH	KPH	MPH	KPH	MPH
1ª low splitter	.6	.37	.6	.37	.6	.37
2ª »	.7	.43	.7	.43	.7	.43
3ª »	.9	.56	.9	.56	.9	.56
4ª »	1.0	.62	1.1	.68	1.1	.68
1ª normal splitter	1.3	.81	1.3	.81	1.4	.87
2ª »	1.6	.99	1.7	1.06	1.7	1.06
3ª »	2.0	1.24	2.0	1.24	2.1	1.30
4ª »	2.4	1.49	2.4	1.49	2.5	1.55
1ª high splitter	3.1	1.93	3.2	1.99	3.3	2.05
2ª »	3.9	2.4	4.0	2.5	4.2	2.61
3ª »	4.7	2.92	4.8	2.98	5.1	3.17
4ª »	5.7	3.54	5.8	3.6	6.1	3.79
1ª low	2.4	1.49	2.4	1.49	2.6	1.62
2ª »	3.0	1.86	3.1	1.93	3.2	1.99
3ª »	3.6	2.24	3.7	2.30	3.9	2.42
4ª »	4.3	2.67	4.5	2.80	4.7	2.92
1ª normal	5.4	3.36	5.6	3.50	5.9	3.67
2ª »	6.8	4.23	7.0	4.35	7.4	4.60
3ª »	8.3	5.16	8.5	5.28	8.9	5.53
4ª »	10.0	6.21	10.2	6.34	10.8	6.71
1ª high	13.1	8.14	13.4	8.33	14.1	8.76
2ª »	16.5	10.25	16.9	10.50	17.7	11.00
3ª »	19.9	12.37	20.4	12.68	21.5	13.36
4ª »	24.0	14.91	24.6	15.29	25.9	16.09
1ª reverse splitter	1.5	.23	1.5	.93	1.6	.99
2ª »	1.7	1.06	1.7	1.06	1.8	1.12
3ª »	2.0	1.24	2.1	1.30	2.2	1.37
4ª »	2.4	1.49	2.5	1.55	2.6	1.62
1ª reverse	5.6	3.48	5.7	3.54	6.0	3.73
2ª »	7.0	4.35	7.2	4.47	7.5	4.66
3ª »	8.5	5.28	8.7	5.41	9.1	5.65
4ª »	10.2	6.34	10.5	6.52	11.0	6.84

POWER TRAIN SCHEMATICS

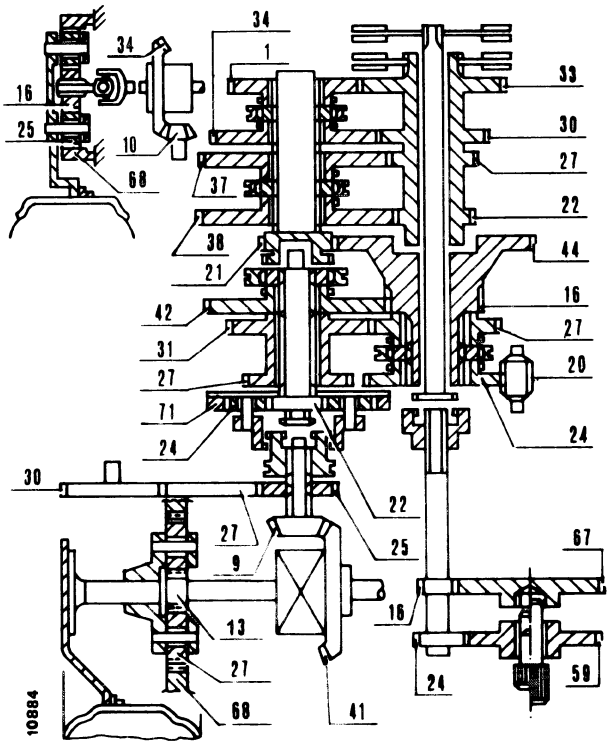
1880-1880 DT (12-24 speed version)

Tractor speeds at maximum engine speed		
GEAR	1880-1880 DT (12-24 speed) with rear tyre:	
	20.8/38	
	KPH	MPH
1ª low splitter	.6	.37
2ª »	.7	.43
3ª »	.9	.56
4ª »	1.1	.68
1ª normal splitter	1.4	.87
2ª »	1.7	1.06
3ª »	2.1	1.30
4ª »	2.5	1.55
1ª high splitter	3.3	2.05
2ª »	4.2	2.61
3ª »	5.1	3.17
4ª »	6.1	3.79
1ª low	2.6	1.62
2ª »	3.2	1.99
3ª »	3.9	2.42
4ª »	4.7	2.92
1ª normal	5.9	3.67
2ª »	7.4	4.60
3ª »	8.9	5.53
4ª »	10.8	6.71
1ª high	14.1	8.76
2ª »	17.7	11.00
3ª »	21.5	13.36
4ª »	25.9	16.09
1ª reverse splitter	1.6	.99
2ª »	1.8	1.12
3ª »	2.2	1.37
4ª »	2.6	1.62
1ª reverse	6.0	3.73
2ª »	7.5	4.66
3ª »	9.1	5.65
4ª »	11.0	6.84



POWER TRAIN SCHEMATICS

1180-1180 DT with high speed bevel drive (12-24 speed version)

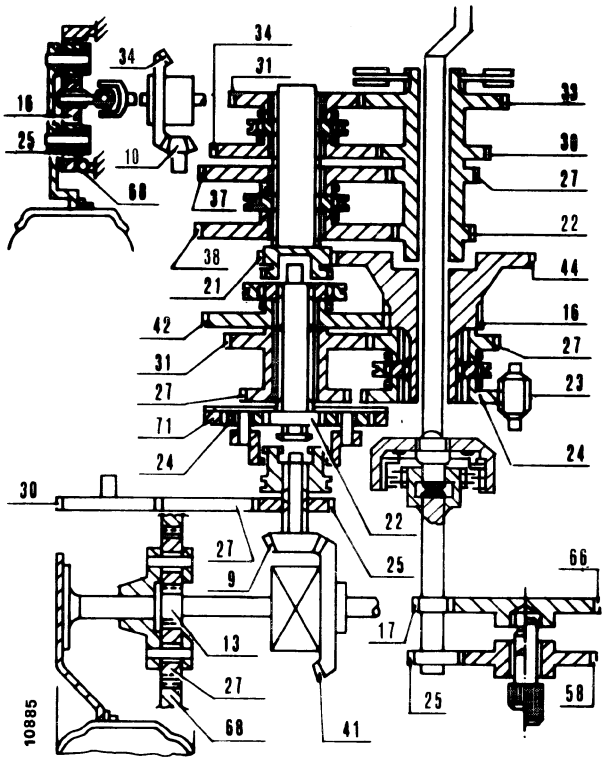


Tractor speeds at maximum engine speed						
GEARS	1180-1180 DT with high speed bevel drive (12-24 speed) with rear tyres:					
	16.9/14-38		18.4/15-38		23.1/18-34	
	KPH	MPH	KPH	MPH	KPH	MPH
1ª low splitter	.7	.43	.7	.43	.7	.43
2ª »	.8	.50	.8	.50	.9	.56
3ª »	1.0	.62	1.0	.62	1.1	.68
4ª »	1.2	.75	1.2	.75	1.3	.81
1ª normal splitter	1.5	.93	1.5	.93	1.6	.99
2ª »	1.9	1.18	1.9	1.18	2.0	1.24
3ª »	2.3	1.43	2.4	1.49	2.4	1.49
4ª »	2.8	1.74	2.8	1.74	2.9	1.80
1ª high splitter	3.6	2.24	3.7	2.30	3.8	2.36
2ª »	4.6	2.86	4.7	2.92	4.8	2.98
3ª »	5.5	3.4	5.7	3.54	5.8	3.60
4ª »	6.6	4.10	6.9	4.29	7.0	4.35
1ª low	2.8	1.74	2.9	1.80	2.9	1.80
2ª »	3.5	2.17	3.6	2.24	3.7	2.30
3ª »	4.2	2.61	4.4	2.73	4.5	2.80
4ª »	5.1	3.17	5.3	3.29	5.4	3.36
1ª normal	6.3	3.91	6.5	4.04	6.7	4.16
2ª »	8.0	4.97	8.3	5.16	8.5	5.28
3ª »	9.7	6.03	10.0	6.21	10.2	6.34
4ª »	11.7	7.27	12.0	7.46	12.3	7.64
1ª high	15.3	9.51	15.8	9.82	16.1	10.00
2ª »	19.3	11.99	19.9	12.37	20.4	12.68
3ª »	23.3	14.48	24.0	14.91	24.6	15.29
4ª »	28.1	17.46	29.0	18.02	29.7	18.46
1ª reverse splitter	1.5	.93	1.6	.99	1.6	.99
2ª »	1.9	1.18	2.0	1.24	2.0	1.24
3ª »	2.4	1.49	2.4	1.49	2.5	1.55
4ª »	2.8	1.74	2.9	1.80	3.0	1.86
1ª reverse	6.5	6.04	6.7	4.16	6.8	4.23
2ª »	8.2	5.10	8.4	5.22	8.6	5.34
3ª »	9.9	6.15	10.2	6.34	10.4	6.46
4ª »	11.9	7.39	12.3	7.64	12.6	7.83

POWER TRAIN SCHEMATICS

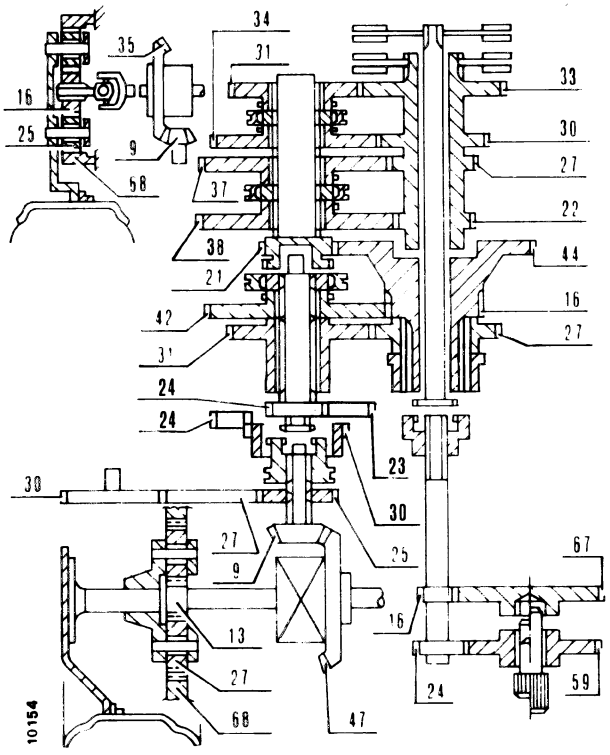
1380-1380 DT with high speed bevel drive (12-24 speed version)

Tractor speeds at maximum engine speed						
GEARS	1380-1380 DT with high speed bevel gear (12-24 speed) with rear tyres:					
	18.4/15-38		23.1/18-34		20.8/38	
	KPH	MPH	KPH	MPH	KPH	MPH
1ª low splitter	.6	.37	.7	.43	.7	.43
2ª »	.8	.50	.8	.50	.8	.50
3ª »	1.0	.62	1.0	.62	1.0	.62
4ª »	1.2	.75	1.2	.75	1.2	.75
1ª normal splitter	1.5	.93	1.5	.93	1.5	.93
2ª »	1.9	1.18	1.9	1.18	1.9	1.18
3ª »	2.3	1.43	2.3	1.43	2.4	1.49
4ª »	2.7	1.68	2.8	1.74	2.8	1.74
1ª high splitter	3.6	2.24	3.7	2.30	3.7	2.30
2ª »	4.5	2.80	4.6	2.86	4.7	2.92
3ª »	5.5	3.42	5.6	3.48	5.7	3.54
4ª »	6.6	4.10	6.7	4.16	6.9	4.29
1ª low	2.7	1.68	2.8	1.74	2.9	1.80
2ª »	3.5	2.17	3.5	2.17	3.6	2.24
3ª »	4.2	2.61	4.3	2.67	4.4	2.73
4ª »	5.1	3.17	5.2	3.23	5.3	3.29
1ª normal	6.3	3.91	6.4	3.98	6.6	4.10
2ª »	7.9	4.91	8.1	5.03	8.3	5.16
3ª »	9.6	5.97	9.8	6.09	10.0	6.21
4ª »	11.6	7.21	11.8	7.33	12.1	7.52
1ª high	15.1	9.38	15.5	9.63	15.8	9.82
2ª »	19.1	11.87	19.6	12.18	19.9	12.37
3ª »	23.1	14.35	23.6	14.67	24.0	14.91
4ª »	27.8	17.27	28.5	17.71	29.0	18.02
1ª reverse splitter	1.5	.93	1.5	.93	1.6	.99
2ª »	1.9	1.18	2.0	1.24	2.0	1.24
3ª »	2.3	1.43	2.4	1.49	2.4	1.49
4ª »	2.8	1.74	2.9	1.80	2.9	1.80
1ª reverse	6.4	3.98	6.6	4.10	6.7	4.16
2ª »	8.1	5.03	8.3	5.16	8.4	5.22
3ª »	9.8	6.09	10.0	6.21	10.2	6.34
4ª »	11.8	7.33	12.1	7.52	12.3	7.64

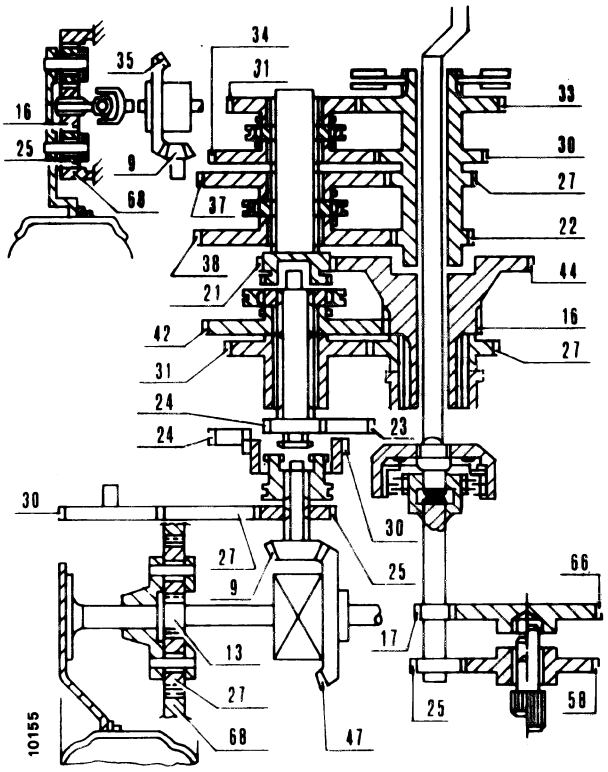


POWER TRAIN SCHEMATICS

1180-1180 DT with mechanical reverser



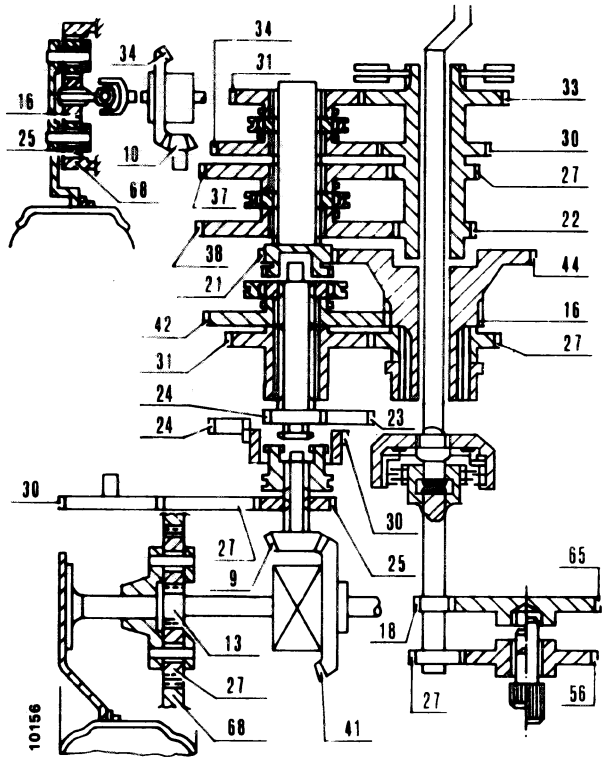
1380-1380 DT with mechanical reverser



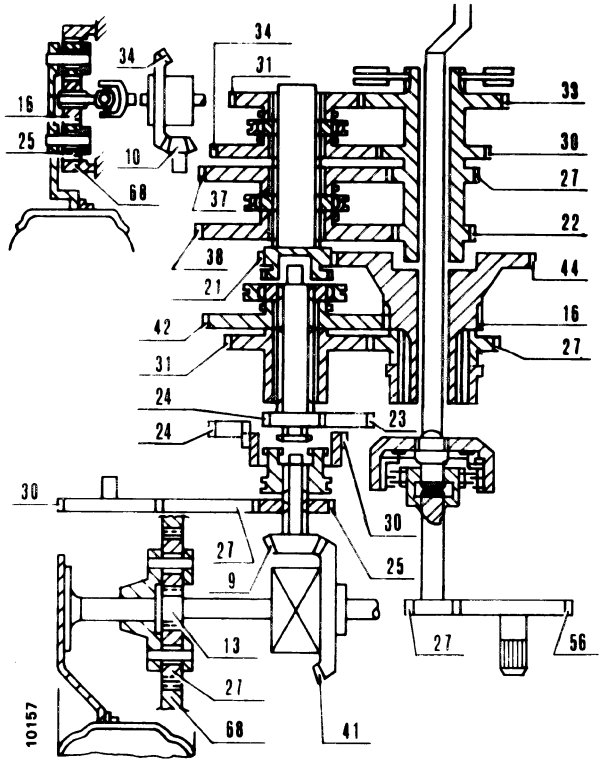
Tractor speeds at maximum engine speeds												
GEARS	1180-1180 DT with rear tyres:						1380-1380 DT with rear tyres:					
	16.9/14-38		18.4/15-38		23.1/18-34		20.8/38		18.4/15-38		23.1/18-34	
	KPH	MPH	KPH	MPH	KPH	MPH	KPH	MPH	KPH	MPH	KPH	MPH
1ª low	2.4	1.49	2.5	1.55	2.5	1.55	2.5	1.55	2.4	1.49	2.4	1.49
2ª »	3.0	1.86	3.1	1.93	3.2	1.99	3.2	1.99	3.1	1.93	3.0	1.86
3ª »	3.7	2.30	3.8	2.36	3.8	2.36	3.9	2.42	3.7	2.30	3.6	2.24
4ª »	4.5	2.80	4.5	2.80	4.6	2.86	4.7	2.92	4.5	2.80	4.4	2.73
1ª normal	5.6	3.48	5.7	3.54	5.8	3.60	5.8	3.60	5.5	3.42	5.4	3.36
2ª »	7.0	3.35	7.1	4.41	7.3	4.54	7.3	4.54	7.0	3.35	6.8	4.23
3ª »	8.5	5.28	8.6	5.34	8.8	5.47	8.9	5.53	8.5	5.28	8.3	5.16
4ª »	10.2	6.34	10.4	6.46	10.6	6.59	10.7	6.65	10.2	6.34	10.0	6.21
1ª high	13.4	8.33	13.6	8.45	13.9	8.64	14.0	8.70	13.4	8.33	13.1	8.14
2ª »	16.9	10.50	17.2	10.69	17.5	10.87	17.7	11.00	16.8	10.44	16.5	10.25
3ª »	20.4	12.68	20.8	12.93	21.2	13.17	21.4	13.30	20.4	12.68	19.9	12.37
4ª »	24.6	15.30	25.1	15.60	25.6	15.91	25.8	16.03	24.6	15.29	24.0	14.91
1ª low reverse	1.9	1.18	2.0	1.24	2.0	1.24	2.0	1.24	1.9	1.18	1.9	1.18
2ª »	2.4	1.49	2.5	1.55	2.5	1.55	2.6	1.62	2.4	1.49	2.4	1.49
3ª »	2.9	1.80	3.0	1.86	3.1	1.93	3.1	1.93	3.0	1.86	2.9	1.80
4ª »	3.5	2.17	3.6	2.24	3.7	2.30	3.7	2.30	3.6	2.24	3.5	2.17
1ª normal reverse	4.4	2.73	4.5	2.80	4.6	2.86	4.7	2.92	4.4	2.73	4.3	2.67
2ª »	5.6	3.78	5.7	3.54	5.8	3.60	5.9	3.67	5.6	3.78	5.5	3.42
3ª »	6.8	4.23	6.9	4.29	7.0	4.35	7.1	4.41	6.8	4.23	6.6	4.10
4ª »	8.2	5.10	8.3	5.16	8.5	5.28	8.6	5.34	8.2	5.10	8.0	4.97
1ª high reverse	10.7	6.65	10.9	6.77	11.1	6.90	11.2	6.96	10.7	6.65	10.4	6.46
2ª »	13.5	8.39	13.8	8.58	14.0	8.70	14.1	8.76	13.5	8.39	13.2	8.20
3ª »	16.3	10.13	16.6	10.32	16.9	10.50	17.1	10.63	16.3	10.13	15.9	9.88
4ª »	19.7	12.24	20.1	12.49	20.4	12.68	20.6	12.80	19.6	12.18	19.2	11.93

POWER TRAIN SCHEMATICS

1580-1580 DT with mechanical reverser



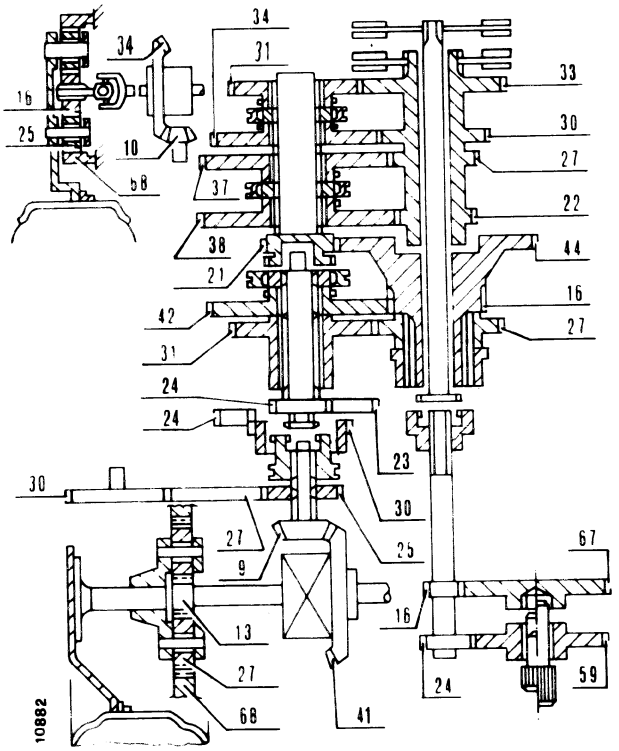
1880-1880 DT with mechanical reverser



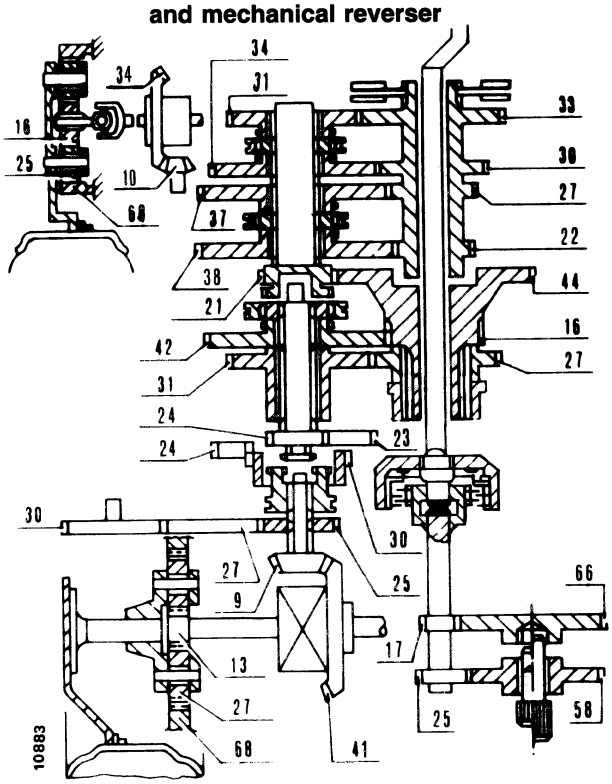
Tractor speeds at maximum engine speeds								
GEARS	1580-1580 DT with rear tyres:						1880-1880 DT with rear tyres:	
	23.1/18-34		18.4/15-38		20.8/38		20.8/38	
	KPH	MPH	KPH	MPH	KPH	MPH	KPH	MPH
1ª low	2.4	1.49	2.4	1.49	2.6	1.62	2.6	1.62
2ª »	3.0	1.86	3.1	1.93	3.2	1.99	3.2	1.99
3ª »	3.6	2.24	3.7	2.30	3.9	2.42	3.9	2.42
4ª »	4.3	2.67	4.5	2.80	4.7	2.92	4.7	2.92
1ª normal	5.4	3.36	5.6	3.48	5.9	3.67	5.9	3.67
2ª »	6.8	4.23	7.0	3.35	7.4	4.60	7.4	4.60
3ª »	8.3	5.16	8.5	5.28	8.9	5.53	8.9	5.53
4ª »	10.0	6.21	10.2	6.34	10.8	6.71	10.8	6.71
1ª high	13.1	8.14	13.4	8.33	14.1	8.76	14.1	8.76
2ª »	16.5	10.25	16.9	10.50	17.7	11.00	17.7	11.00
3ª »	19.9	12.37	20.4	12.68	21.5	13.36	21.5	13.36
4ª »	24.0	14.91	24.6	15.29	25.9	16.09	25.9	16.09
1ª low reverse	1.9	1.18	1.9	1.18	2.0	1.24	2.0	1.24
2ª »	2.4	1.49	2.5	1.55	2.6	1.62	2.6	1.62
3ª »	2.9	1.80	3.0	1.86	3.1	1.93	3.1	1.93
4ª »	3.5	2.17	3.6	2.24	3.8	2.36	3.8	2.36
1ª normal reverse	4.3	2.67	4.6	2.86	4.7	2.92	4.7	2.92
2ª »	5.5	3.42	5.6	3.48	5.9	3.67	5.9	3.67
3ª »	6.6	4.10	6.8	4.23	7.1	4.41	7.1	4.41
4ª »	8.0	4.97	8.2	5.10	8.6	5.34	8.6	5.34
1ª high reverse	10.5	6.52	10.7	6.65	11.3	7.02	11.3	7.02
2ª »	13.3	8.26	13.5	8.39	14.2	8.82	14.2	8.82
3ª »	15.9	9.88	16.3	10.13	17.2	10.69	17.2	10.69
4ª »	19.2	11.93	17.7	11.00	20.7	12.86	20.7	12.86

POWER TRAIN SCHEMATICS

1180-1180 DT with high speed bevel drive and mechanical reverser



1380-1380 DT with high speed bevel drive and mechanical reverser



Tractor speeds at maximum engine speeds												
GEARS	1180-1180 DT with rear tyres:						1380-1380 DT with rear tyres:					
	16.9/14-38		18.4/15-38		23.1/18-34		18.4/15-38		23.1/18-34		20.8/38	
	KPH	MPH	KPH	MPH	KPH	MPH	KPH	MPH	KPH	MPH	KPH	MPH
1ª low	2.8	1.74	2.9	1.80	2.9	1.80	2.7	1.68	2.8	1.74	2.9	1.80
2ª »	3.5	2.17	3.6	2.24	3.7	2.30	3.5	2.17	3.5	2.17	3.6	2.24
3ª »	4.2	2.61	4.4	2.73	4.5	2.80	4.2	2.61	4.3	2.67	4.4	2.73
4ª »	5.1	3.17	5.3	3.29	5.4	3.36	5.1	3.17	5.2	3.23	5.3	3.29
1ª normal	6.3	3.91	6.5	4.04	6.7	4.16	6.3	3.91	6.4	3.98	6.6	4.10
2ª »	8.0	4.97	8.3	5.16	8.5	5.28	7.9	4.91	8.1	5.03	8.3	5.16
3ª »	9.7	6.03	10.0	6.21	10.2	6.34	9.6	5.97	9.8	6.09	10.0	6.21
4ª »	11.7	7.27	12.0	7.46	12.3	7.64	11.6	7.21	11.8	7.33	12.1	7.52
1ªe high	15.3	9.51	15.8	9.82	16.1	10.00	15.1	9.38	15.5	9.63	15.8	9.82
2ª »	19.3	11.99	19.9	12.37	20.4	12.68	19.1	11.87	19.6	12.18	19.9	12.37
3ª »	23.3	14.48	24.0	14.91	24.6	15.29	23.1	14.35	23.6	14.67	24.0	14.91
4ª »	28.1	17.46	29.0	18.02	29.7	18.46	27.8	17.27	28.5	17.71	29.0	18.02
1ª low reverse	2.2	1.37	2.3	1.43	2.3	1.43	2.2	1.37	2.3	1.43	2.3	1.43
2ª »	2.8	1.74	2.9	1.80	3.0	1.86	2.8	1.74	2.8	1.74	2.9	1.80
3ª »	3.4	2.11	3.5	2.17	3.6	2.24	3.4	2.11	3.4	2.11	3.5	2.17
4ª »	4.1	2.55	4.2	2.61	4.3	2.67	4.0	2.49	4.1	2.55	4.2	2.61
1ª normal reverse	5.1	3.17	5.2	3.23	5.4	3.36	5.0	3.11	5.2	3.23	5.2	3.23
2ª »	6.4	3.98	6.6	4.10	6.8	4.23	6.3	3.91	6.5	4.04	6.6	4.10
3ª »	7.7	4.78	8.0	4.97	8.2	5.10	7.7	4.78	7.9	4.91	8.0	4.97
4ª »	9.3	5.78	9.6	5.97	9.9	6.15	9.2	5.72	9.5	5.90	9.6	5.97
1ª high reverse	12.2	7.58	12.5	7.77	12.8	7.95	12.1	7.52	12.4	7.71	12.6	7.83
2ª »	15.4	9.57	15.9	9.88	16.3	10.13	15.3	9.51	15.6	9.69	15.9	9.88
3ª »	18.6	11.56	19.2	11.93	19.7	12.24	18.4	11.43	18.9	11.74	19.2	11.93
4ª »	22.5	13.98	23.2	14.42	23.7	14.73	22.3	13.86	22.8	14.17	23.2	14.42

POWER TRAIN

Clutch (1180)

Type .....LUK or FERODO 12″
Construction .....twin, dry single plate
Controls:
— transmission ..... pedal
— P.T.O. .....hand lever
Plate material:
— transmission .....Cerametallic compound
— P.T.O. .....organic compound.

Master clutch (1180 H, 1380, 1580 and 1880)

Type .....FERODO or LUK 14″
Construction ..... dry single plate
Material .....Cerametallic compound
Control ..... mechanical, pedal

P.T.O. clutch (1180 H, 1380, 1580 and 1880)

Type .....multidisc, oil bath
Location ..... rear transmission housing
Operation .....hydraulic

Transmission

Type ..... constant mesh, full-synchromesh
Gear ..... helical
Splitter .....pinion drive
Forward .....3 ranges; 12 forward speeds
Reverse .....1 range; 4 reverse speeds

Crawler version:

Crawler type .....planetary
Forward .....24 speeds
Reverse .....8 speeds

Mechanical reverser version:

Forward .....12 speeds
Reverse .....12 speeds
Transmission and splitter controls separate levers below steering wheel.
Crawler or reverse control handle on left of operator's

Bevel drive ..... Standard

High speed .....optional for 1180 and 1380
— Maximum speed ..... 30 km/h (18.63 mph)

Differential

Type .....4 pinion
Mechanical lock ..... pedal operated

Hydraulic differential lock. Standard for 1180, optional for 1380, 1580 and 1880.
Type .....multidisc hydraulic clutch
Drive .....oil bath P.T.O. clutch pump equipped
.....with flow divider valve
Early model differential lock control independent pedal
Late model differential lock release .....brake pedals

Final drives

Type ..... planetary, 3 planets

BRAKES

Service

Oil-bath, disc, inboard, hydrostatic, divided circuit, separate pedals.

Parking and emergency

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

STEERING

Type .....hydrostatic power steering
Circuit .....independent
Steerage joints .....sealed for life
Turning radius (no brakes):

	mm	ft.	in.
— 1180	4600	15	1
— 1180 DT, front wheel drive in	6600	21	8
— 1380	4600	15	1
— 1380 DT, front wheel drive in	6600	21	8
— 1580	5100	16	9
— 1580 DT, front wheel drive in	7300	23	11½
— 1880	5100	16	9
— 1880 DT, front wheel drive in	7300	23	11½

FRONT AXLE (1180, 1380, 1580 and 1880)

Type .....inverted U, telescoping, center pivoting
Track adjustment .....sliding axle ends
Track widths ..... 6 off