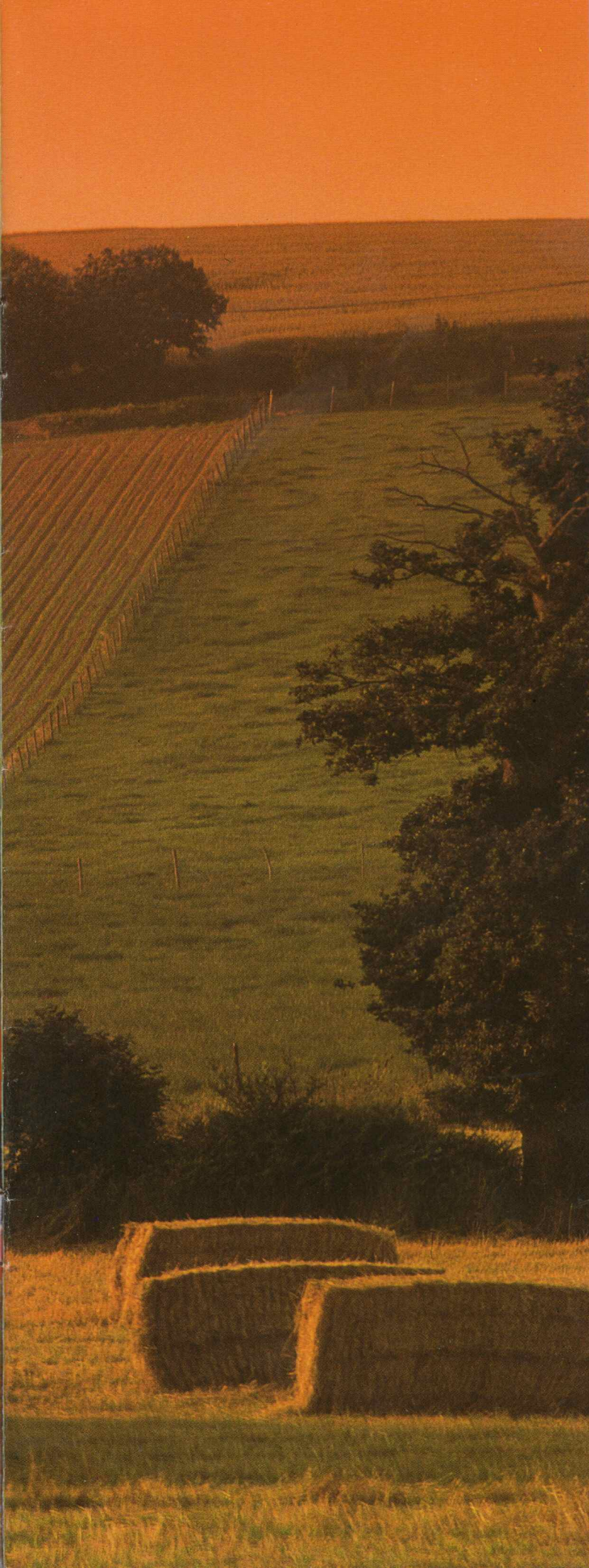


90-90 100-90 110-90 2WD and 4WD A FORCE IN EUROPE





Tractors for every field



Tractors in this horsepower sector are the mainstay of farm mechanisation in Europe, because this is the power bracket where the farmer-operator finds these highly versatile tractors specifically designed to meet all his different agricultural requirements from heavy cultivation to top work, from soil preparation to harvesting. Tractors designed for maximum comfort during his long working day, tractors that handle like cars also on long road hauls, with a top speed of 40 km/hour on specific versions of the 4WD models (in those countries where this is allowed).

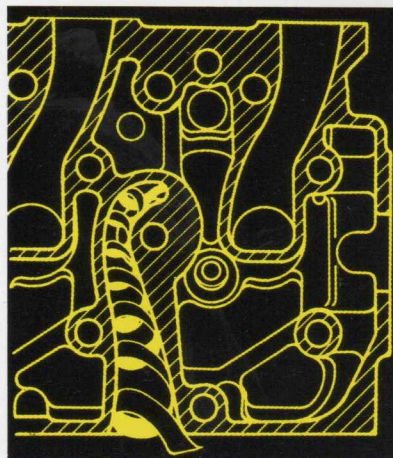
This is why Series 90 Intermediate range tractors have been aptly called "Full range tractors": for their adaptability, low fuel consumption, combined with high performance engine and power take-off: a wide range of features to provide full use and a sure return on investment. Specifically designed and engineered with the needs of medium-sized farms and the farmer-operator in mind, these models contribute to making Fiat tractors leaders in Europe.

Fiat Series 8000 engines: great power and reliability

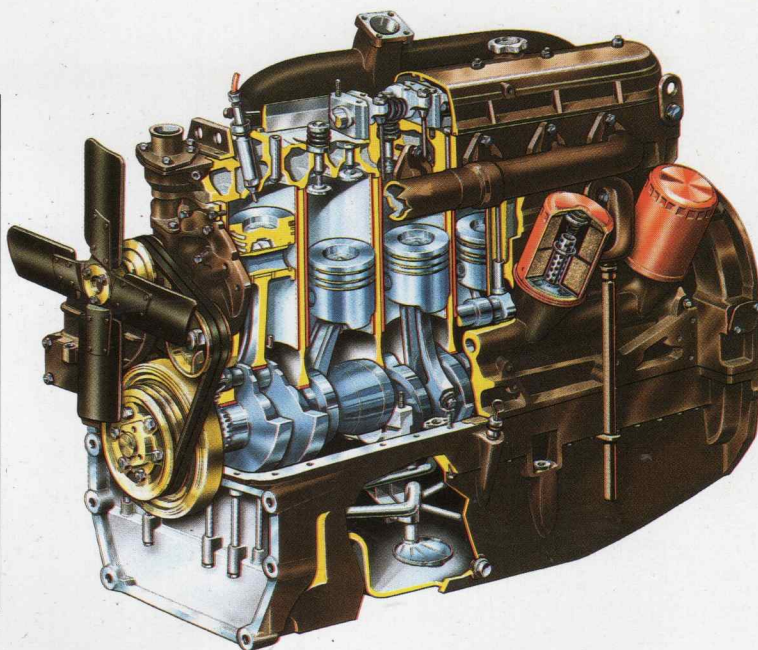
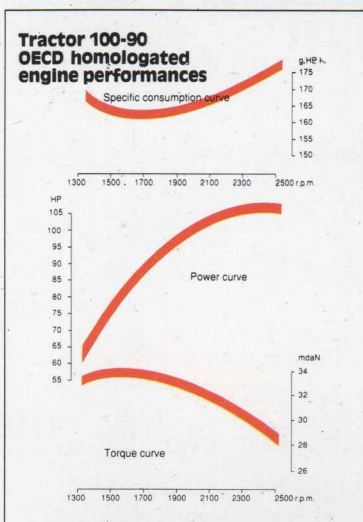
The Fiat Group is one of the world's leading makers of Diesel engines for all types of vehicles and industrial applications with over 80 years experience in this sector.

The most recent development, the Series 8000, offers a range of 3, 4, 5 and 6 cylinder modular engines, all with a stroke of 115 mm, featuring extensive standardisation of a high number of interchangeable parts, thus promoting easy troublefree servicing. The outstanding characteristics of these engines range from their low fuel consumption and low smoke emission to high torque reserve and versatility of operation. One of their most noteworthy features is the Fiat "omega" high turbulence combustion chamber and the spiral suction ducts which

improve twist and swirl of the air and increase air flow speed. The 90/100/110-90 intermediate range tractors are fitted with a 5 cylinder, 104 mm bore engine with a displacement of 4885 cm³ on the 90 hp model, a 6 cylinder, 100 mm bore engine with a displacement of 5419 cm³ on the 100 hp model, a 6 cylinder, 104 mm bore engine with a displacement of 5861 cm³ on the 110 hp model: r.p.m. at maximum power is 2500 with max. torque at 1500 r.p.m. with a torque reserve of over 20% and a flexible range of 1000 r.p.m. from max r.p.m. to max. torque.



This cutaway of the cylinder head shows the spiral-type intake duct newly designed to optimize swirl and increase the air in the cylinders.



Cutaway of the sturdy 104 mm bore, 5861 cc displacement 6 cylinder aspirated engine mounted on the 110-90 and 110-90 DT.



A made-to-measure transmission

Clutch group

Sturdy, long-lasting fully independent dual 12" clutch:

- the first clutch in organic material for the fully independent power take-off controlled by a lever in the cab;

- The second clutch for the transmission with 6 cerametallic buttons for long life, excellent dissipation of heat with smooth gradual pedal engagement (less than 15 kg foot pressure) with automatic free travel adjustment.

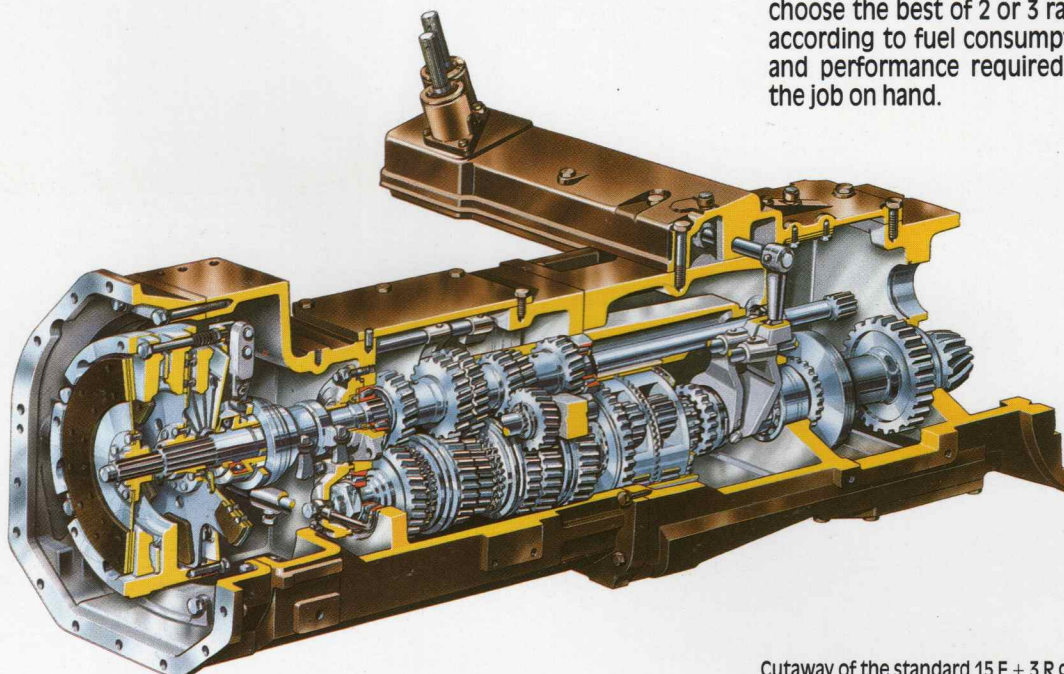
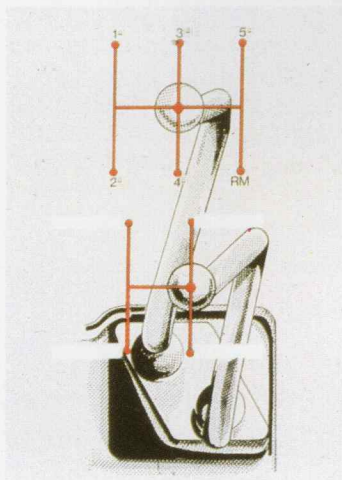
The gearbox

With 5 F + 1 R synchronized, helical cut gears in constant mesh, with two epicyclic reducer groups for a total of 15 F and 3 reverse speeds, from 1 to 30 or 40 km/hour according to version.

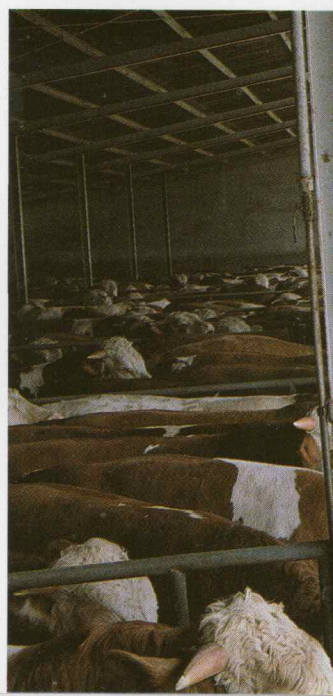
A version is available with an additional creeper speed gear unit providing a total of 20 F + 4 R speeds from 300 meters/hour to 30 or 40 km/hour* according to version.

Evenly spaced to cover all operating requirements ranging from creeper speeds (5 between 300 meters and 1 km/hour) to slow, medium and fast with 8 working speeds between 3 and 12 km/hour and take-off under load of trailers in 1st fast speed at only 6.5-7.5 km/hour with max. torque for road hauls, followed by 4 synchroshifted gearchanges to reach a top speed of 30 or 40 km/hour*.

One of the most striking features of these engines, as highlighted in the graphs showing speed steps in each gear, is the way in which the coloured bars of each speed overlap. This is made possible by the flexibility and torque reserve of the engines, which allow the driver to choose the best of 2 or 3 ratios according to fuel consumption and performance required for the job on hand.



Cutaway of the standard 15 F + 3 R gearbox.

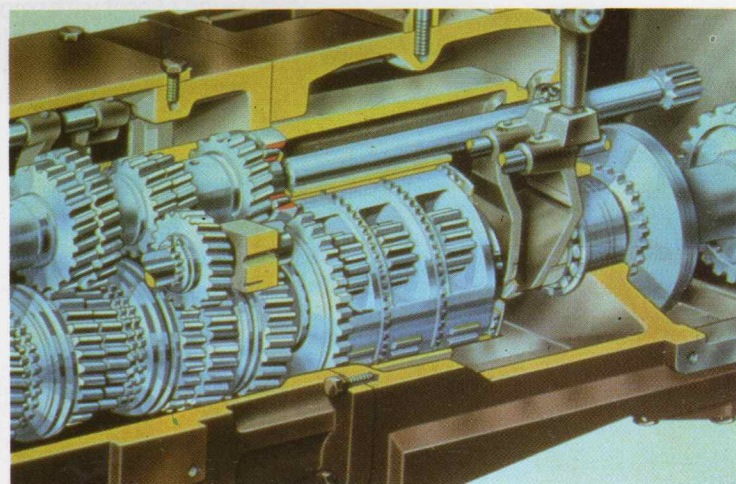




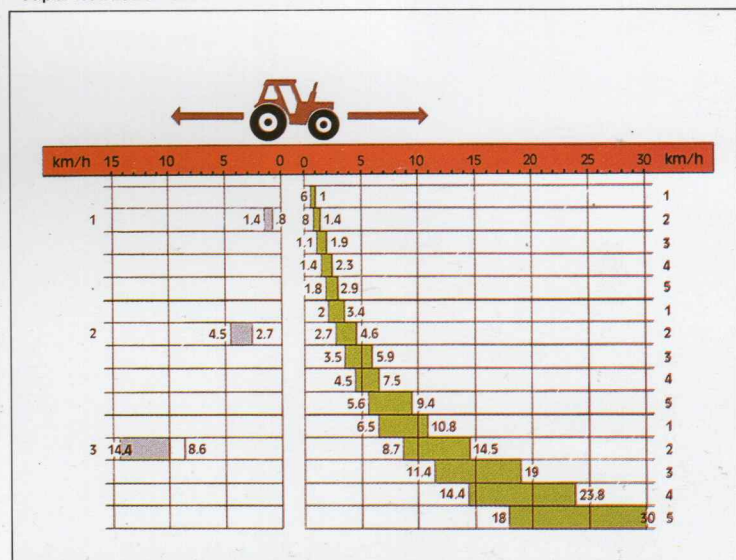
Another important feature, designed to enhance comfort and ease of handling is the automotive type arrangement of the gear levers so that gear change is instinctive, following the usual pattern. The synchromesh reverse gear also allows fast effortless shifting into reverse.

All in all, therefore, a modern, highly functional gearbox able to convert engine power and torque into top flight performance, exploiting these to the full to reduce fuel consumption when using the power take-off or during field work or road hauls.

* The versions with a top speed of 40 km/hour are available only for the 4WD models.



Detail of the 20 F + 4 R gearbox, with "Super Reduction Unit".



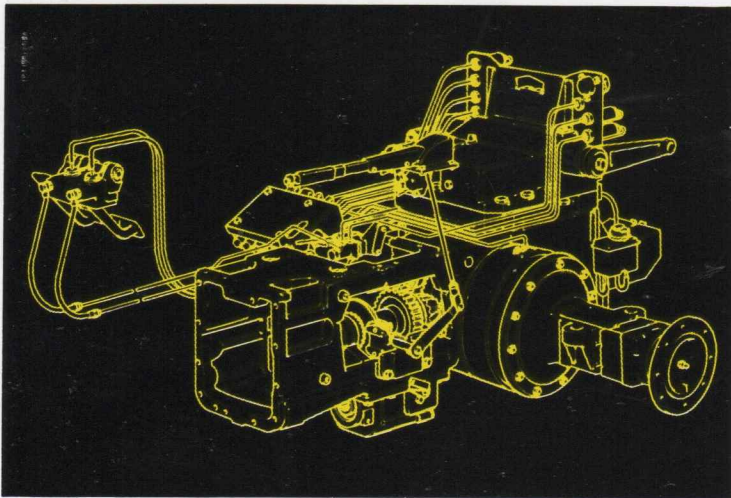
Speed range with standard 15 F + 3 R gearbox.

The rear assemblies

Sturdiness and safety of operation of these tractors are fully guaranteed by the rear group of the transmission: from the bevel gear of the differential with Gleason cut gears available with two ratios for the 30 and 40 km/hour versions of the 4WD models, to the mechanical engagement-hydrostatic disengagement of the differential, the overspecified epicyclic final drives, disc brakes in oil bath, all extremely rugged and reliable. High strength nodular iron housings guarantee maximum strength. These assemblies transform engine performance and torque into tractive power at the wheel through selection of the speeds of the gearbox, increasing the drive torque and making it possible to attain top performance at the various speeds.

Important strong points include:

- Hydrostatic disengagement of the differential lock: a light touch on one of the brake pedals unlocks the differential providing ease of operation and fast manoeuvring.
- A warning light on the dashboard alerts the driver that the differential is locked.
- Independent circuit, hydraulic disc brakes in oil bath with automatic adjustment: maximum safety, minimum effort, maintenance free.
- Parking brake of the disc type in oil bath on the output shaft of the gearbox: powerful, independent of the service brake, long lasting, a real emergency brake.



Hydraulic, separate circuit braking system and disc type safety-parking brake.



Power for the asking at the power take-off

For this category of tractors, PTO operation often accounts for 25-30% of total working time. The PTO of the 90, 100 and 110-90 provides a wide range of features to meet these requirements, as shown in the table below which covers all three models:

PTO RPM	540	1000
Engine RPM	2124	2409
% of max. engine speed	85%	96%
% max. power available at PTO	94%	100%
PTO RPM at max. engine speed	635	1037
Ground speed		
PTO RPM per wheel rev.	17.28	28.22

The above figures translate into the following strong points:

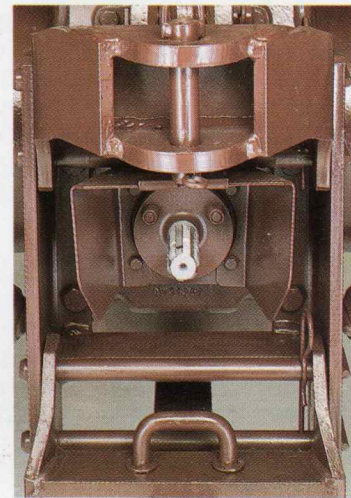
- Choice of two speeds, 540 and 1000 rpm, selected by changing the flanged ends, according to the implements used with maximum safety to avoid errors.

- 540 rpm with engine at approx 2100 rpm. Ample reserve of power and torque to cope with momentary overloads of implements (mowers, balers etc.).

- 1000 rpm with engine at 2400 rpm: engine supplies 100% of its power to operate even the heaviest equipment (such as the big Hesston 4700 baler), still leaving more than 100 rpm speed reserve for overloads.

- Ground speed P.T.O. synchronized with wheels engaged by hand lever for maximum versatility of use.

The Power Take-off of these tractors is fully independent, engaged with a wide stroke



lever on the driver's left for gradual smooth engagement. It is activated by a 12" clutch with only one set of reduction gears with high level mechanical performance and minimum power loss.



10 strong points

1 FIAT-IVECO SERIES 8000 ENGINES:

with 5 and 6 cylinders for 90, 100 and 110 HP/DIN at the flywheel. Huge torque reserve, low fuel consumption, flexibility of over 1000 rpm and incorporating all the technological know-how of the world's leading Diesel engine maker.

2 COMFORT AND SUPERCOMFORT CABS:

designed with man in mind: silent, safe, allround visibility, unbeatable comfort, with air conditioning in the Supercomfort version (Optional).

3 DASHBOARD AND INSTRUMENT PANEL:

complete instrumentation for control of all tractor functions: instant checking of engine oil level on a check panel on the dashboard, smooth gradual engagement of hand and foot controls engineered for maximum comfort and ease of use.

4 HYDRAULIC LIFT:

with a capacity of over 4500 kg, draft control with flexion bar, position and mixed control: Lift-o-Matic and Vario-Speed devices. Adjustable lowering speed. A really top class working tool.

5 POWER TAKE-OFF:

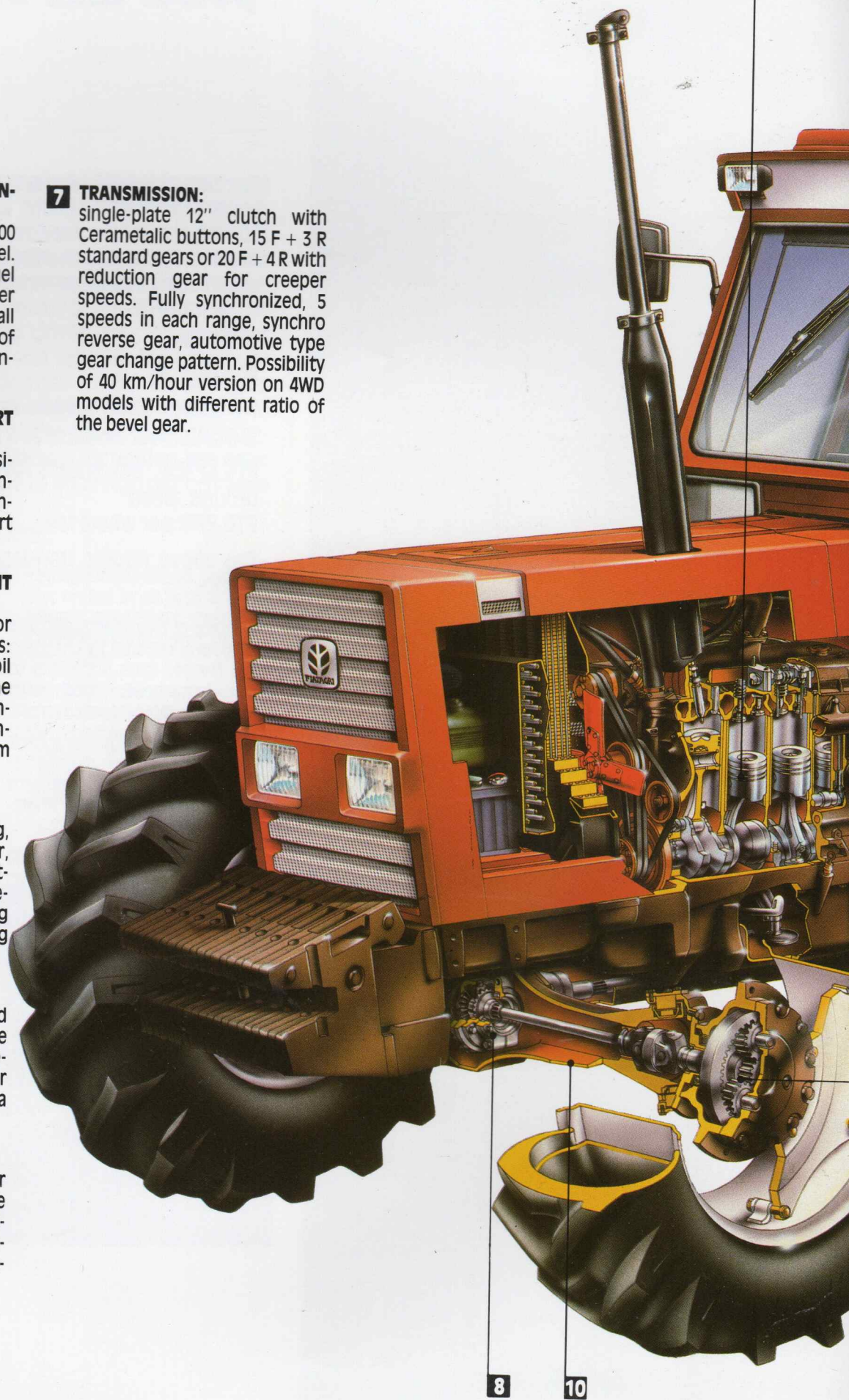
540/1000 rpm and ground speed, almost 100% of engine power available for those implements requiring a high power input, an essential tool for a wide range of different uses.

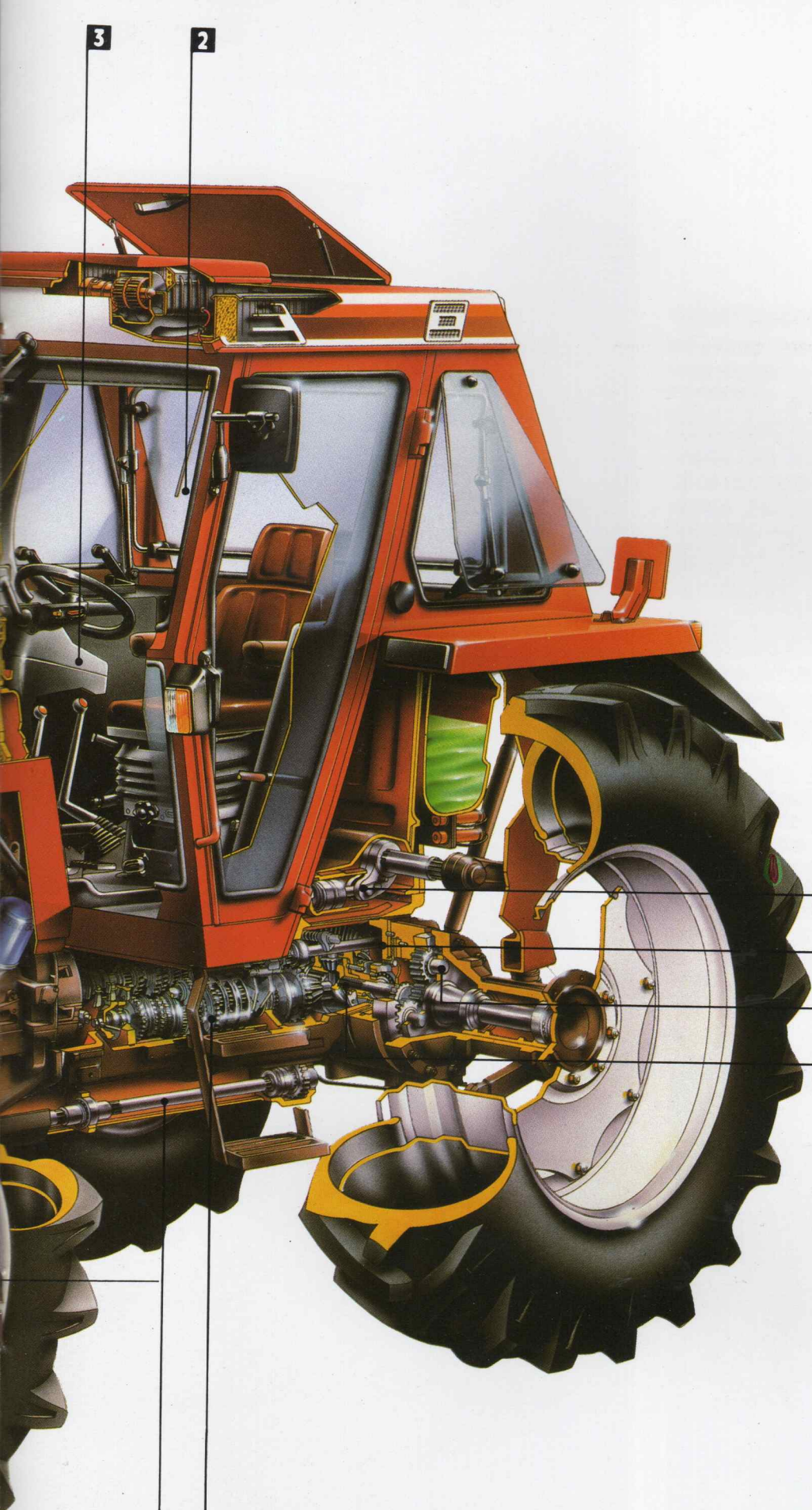
6 FINAL DRIVES AND BRAKES:

robust epicyclic final drives for maximum strength. Disc type brake in oil bath with high efficiency, minimum pressure hydraulic control. Disc type parking-emergency brake.

7 TRANSMISSION:

single-plate 12" clutch with Cerametallic buttons, 15 F + 3 R standard gears or 20 F + 4 R with reduction gear for creeper speeds. Fully synchronized, 5 speeds in each range, synchro reverse gear, automotive type gear change pattern. Possibility of 40 km/hour version on 4WD models with different ratio of the bevel gear.





8 DIFFERENTIAL LOCK:
locking of the rear differential with mechanical detent and hydrostatic release by pressing a brake pedal. Automatic No-Spin device for locking the front differential on 4WD models.

9 4 WHEEL DRIVE:
Fiat Co-axial type, world first: high ground clearance, centrally located differential and large epicyclic final drives.

10 NEW 4WD AXLES:
max. steering angle of 50 degrees with adjustable steering stops. On 40 km/hour versions, multi-disc brake on the differential which is activated together with the service brakes when both pedals are operated together.

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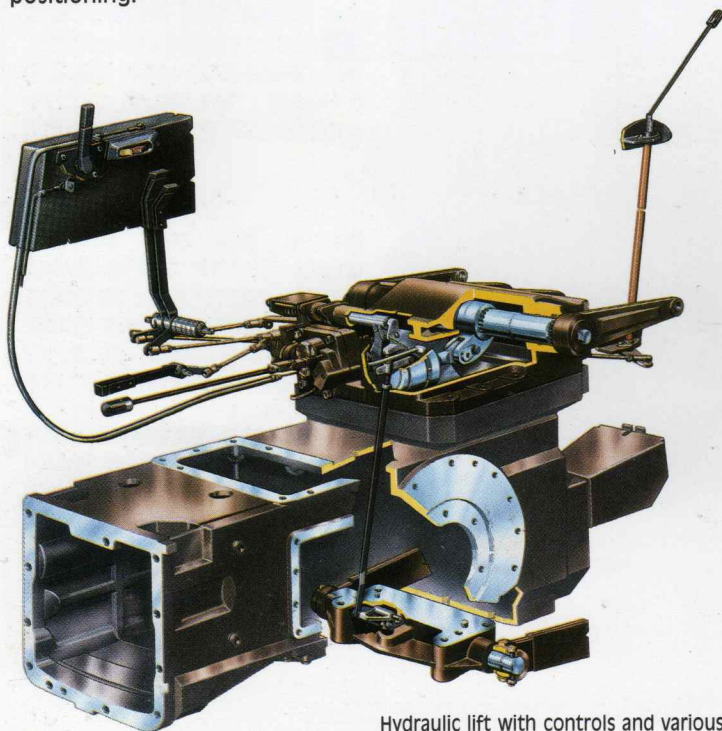
A powerful versatile hydraulic system

The hydraulic system of the Series 90 Intermediate range of tractors is certainly one of their strong points, with advanced technological features designed to enhance performance and make them leaders in this class.

Gear pump driven directly by the engine with capacity of 44 liters/minute, with a rated pressure of 190 bar, open centre circuit, paper filter on the suction side, up to 3 single or double acting auxiliary control valves, quick couplings, trailer braking valve. These are just some of the features of these tractors, that are able to tackle all the various requirements of modern agricultural mechanisation.

The hydraulic lift of the Intermediate range of tractors is perhaps the best example of the advanced technological features of these tractors, with its wide range of different functions and exceptional performance.

- Draft control through the lower links and flexion bar. Draft signals transmitted by linkage fully enclosed in rear transmission housing. Spacers on the flexion bar to adjust sensitivity according to the type of implement used.
- Mixed control: using the two control levers, it is possible to set a lower limit stop, useful in soils of varying resistance.
- Auxiliary valves with float position for all semi-mounted type implements.
- Position control with control lever to set required depth or positioning.



Hydraulic lift with controls and various settings.





Technological innovation

The Fiatagri patented Lift-O-Matic device for automatic lifting/lowering of implements without touching the control levers and without disturbing original draft-position settings. This easy to use device, operated simply pressing a button, makes for smoother operation on the job and reduces operator fatigue and idle times.

The Vario-Speed device, another exclusive Fiatagri feature, to regulate lift sensitivity and frequency of operation for precise draft control under any conditions and with any type of implement, using a four-position lever within easy reach.

Adjustable lowering rate for safety and protection of implements: an easy to use knob which is tightened/untightened to increase/decrease lowering speed. When the knob is fully tightened, the lift is locked for safe transport of implements in the fully raised position.

Performance

Max. lifting capacity at the ball ends with auxiliary cylinder with horizontal links, 4537 kg. The lift of Intermediate Range tractors is sufficient for all types of implements, from the very long multifurrow ploughs to the heavy casks transported for full field operations.

"Lift-O-Matic" push button device.



Comfort or supercomfort always designed with man in mind



Adjustable steering wheel.



Adjustable driver's seat.

"Designed with man in mind" is not just a catch phrase. The cabs of these tractors have really been designed giving maximum priority to the comfort and safety of the farmer-operator, the drivers of those medium-sized farms that are the backbone of the European farming community.

To obtain top performance from the man-machine duo, the driver's cab must be comfortable and safe, silent and where possible climatized. Instrumentation and controls must ensure safety of operation and be designed for ease of use, making the long working day in the cab as pleasant and untiring as possible. Fiatagri has designed all these requirements into the Comfort and Supercomfort cabs of the Intermediate range, whose most important features are as follows:

- production line built cabs embodying the best in Italian design, made of welded pressed steel with built-in roll bar, fully suspended on silent blocks for complete insulation from the body of the tractor: inside linings and floor made of washable sound-deadening material.
- sound levels of less than 80 dBA in the Supercomfort cab! Standard heating and ventilation system: possibility of air-conditioning in the Supercomfort cab. Opening side and rear windows. Fully glazed doors for all-round visibility. A working environment designed and constructed with "man in mind".
- Cloth or imitation leather seat with tilt-up arm rests fully adjustable in all directions, progressively sprung.
- Gearchange levers on driver's right, with automotive type gearchange pattern, arranged to allow unobstructed "walk-through" access from both sides of the cab.
- All the other control levers (lift, PTO, brake etc.), neatly arranged in a rational manner to the right and left of the seat, are engineered for comfort and ease of operation.
- Adjustable steering wheel and dashboard with a full set of LED's, telltales etc. for comfort and safety.

Driver's seat

The driver's compartment of Intermediate range tractors has other equally important features:

- Non-slip clutch and brake pedals for smooth gradual engagement.

An exceptionally comfortable driver's compartment, second to none, for those long working days!



Allround visibility and clearly visible easy reach controls.



"Comfort" cab.



"Supercomfort" cab with air conditioning system.



Fiat system 4WD's - an unbeaten record

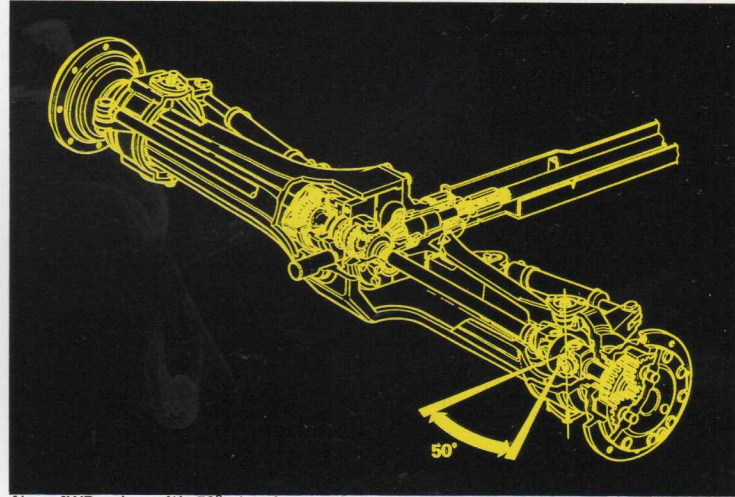
Fiat 4WD tractors have been traditional market leaders for years now worldwide. But for Fiatagri, tradition must go hand in hand with technological innovation. The following new features incorporated in the 4WD's of the Intermediate range are really worth noting:

- New family of front axles with max. 50 degree steering angle, 10 degree camber angle and steering angle limiters for minimum tracks: enhanced manoeuvrability in limited spaces and reduction of turning radius.
- Hydrostatic power steering with two standard rams for smooth, easy steering, located behind the axle for maximum protection.
- New "No-Spin" device for the front differential.
- New front wheel braking device consisting of a multi-disc "pack" connected to the differential which is activated when both brake pedals are pressed. This device, which is mandatory on the 40 km/hour version of the 4WD models, also operates with the 4WD engaged.

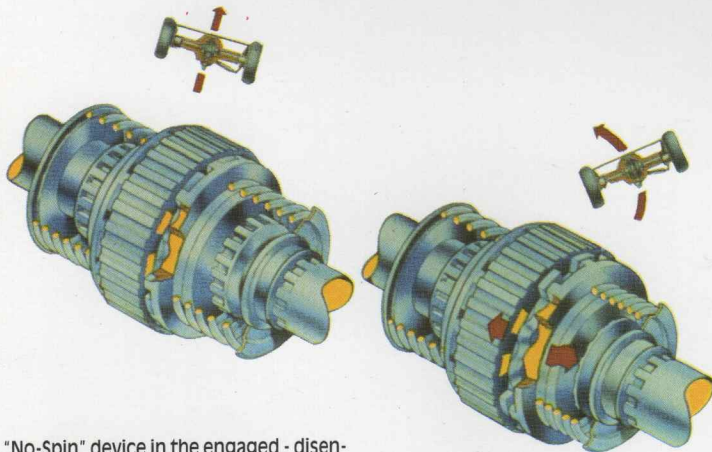
These important innovations are accompanied by the well known features that have made Fiat 4WD's a resounding success worldwide, such as:

- Direct transmission, co-axial with high ground clearance with compact central differential and large epicyclic final drives.
- Fully protected straight-through drive shaft. Half-shafts with fully protected twin universal joints.
- Large diameter drive wheels.

A formula for full drive, for work on any type of ground, for long working life, designed to enhance tractor performance.



New 4WD axles with 50° steering angle and built-in brake.



"No-Spin" device in the engaged - disengaged positions.

Main technical specifications

Model	Weight*	Hp**	Engine	Transmission
90-90	3560 Kg	90	Fiat 8055.05 5 cylinders direct injection Bore and stroke: 104 x 115 mm Piston displacement: 4885 cm ³ Rpm at max. power: 2500	Single plate (12") "cerametallic" clutch Standard gearbox with 15 F + 3 R speeds 1st speed approx. 1 km/h 15th speed approx. 30 km/h or 40 km/h (4WD only) or: Gearbox with super reduction unit: 20 F + 4 R speeds. 5 speeds between 0.3 and 1 km/h and 20th speed at 30 km/h or 40 km/h (4WD only)
90-90 DT	3970 Kg			
100-90	4065 Kg	100	Fiat 8065.06 6 cylinders direct injection Bore and stroke: 100 x 115 mm Piston displacement: 5419 cm ³ Rpm at max. power: 2500	
100-90 DT	4465 Kg			
110-90	4105 Kg	110	Fiat 8065.05 6 cylinders direct injection Bore and stroke: 104 x 115 mm Piston displacement: 5961 cm ³ Rpm at max. power: 2500	
110-90 DT	4505 Kg			

* operating weight with Superconfort cab, including fluids.

** at engine flywheel, OCDE tested power.



Power-Take-off	Hydraulics	Capacities	Tyres
Fully independent single plate (12") clutch, with mechanical control. 540 rpm and proportional ground speed or 540/1000 rpm and proportional ground speed	<p>Pump capacity 90/100-90: 44 l/m</p> <p>Pump capacity 110-90: 57 l/m</p> <p>Rated Pressure: 190 Kg/cm²</p> <p>Draft and position control lift, through lower flexion bar</p> <p>Mixed control Lift-o-Matic Vario-Speed</p> <p>Up to 3 auxiliary control valves</p> <p>Max. lifting capacity at the ball ends of the horizontal links and 1 auxiliary cylinder: Kg 4537.</p>	<p>Fuel tank: 93 l with auxiliary tank: 133 l</p> <p>Engine oil sump and filter: 13.7 l</p> <p>Rear transmission and hydraulic lift: 44.4 l</p>	<p>2WD: front: 7.50-18; 7.50-20 rear: 13.6/12-28; 16.9/14-34;</p> <p>4WD: front: 11.2/10-28; 13.6/12-24 rear: 13.6/12-38; 16.9/14-34;</p>
Fully independent single plate (12") clutch, with mechanical control 540/1000 rpm and proportional ground speed		<p>Fuel tank: 133 l</p> <p>Engine oil sump and filter: 13.6 l</p> <p>Rear transmission and hydraulic lift: 45.5 l</p>	<p>2WD: front: 7.50-20; 11.00-16; rear: 16.9/14-38;</p> <p>4WD: front: 12.4/11-28; 14.9/13-24 rear: 16.9/14-38;</p> <p>Same as 100-90 and 100-90 DT + rear broad base TM 700</p>



The Fiatagri service, Original spares and servicing system. An assurance for customers all over the world.

The San Matteo, Modena, Spares Centre is the heart of the Fiatagri Service. It extends to 2 hectares under cover and can handle more than 3000 orders a day. Its warehouses hold 21 million items classed under 60,000 headings, all original spare parts designed, inspected and checked to guarantee reliability and operating efficiency.

The Spares Centre is linked to the Service School, where workshop foremen and service mechanics are trained to serve the distribution network and customers throughout the world.

Fiatagri's sales organisation is active in more than 100 countries through branches, dealers and importers, guaranteeing the same efficiency and the same operating continuity of its vehicles everywhere.

Product quality, efficient service and dynamic organisation are the key features of the Fiatagri image and the success of Fiat's tractors:

- No. 1 in Europe for 10 years.
- No. 1 in the world for 4WD.
- No. 1 in the world for agricultural crawlers

In Italy, one farmer out of two chooses Fiatagri.



Fiatagri is the Agricultural
Tractor and Machinery
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