Fiat Trattori

FIAT

580-580 DT
680-680 DT

(570 - 670)

WORKSHOP MANUAL

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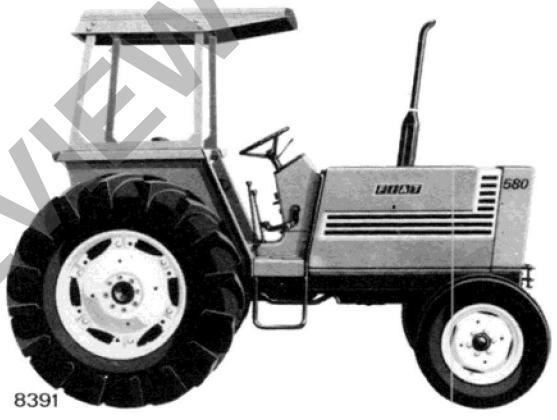
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IDENTIFICATION DATA

Marketing Code — Rear wheel drive (RWD) — Four wheel drive	580 580 DT	680 680 DT
Engineering code:		
— 8-speed, rear wheel drive	661.100.000	662.100.000
— 12-speed, rear wheel drive	661.100.000 Var. 720.286.080	662.100.000 Var. 720.286.090(1)
— 16-speed, rear wheel drive	661.100.000 Var. 720.111.170	662.100.000 Var. 720.111.170(1)
— 8-speed, rear wheel drive with reverser	661.100.000 Var. 700.109.030	662.100.000 Var. 700.109.010
— 8-speed, four wheel drive	661.127.000	662.127.000
— 12-speed, four wheel drive	661.127.000 Var. 720.286.080	662.127.000 Var. 720.286.090(2)
— 16-speed, four wheel drive	661.127.000 Var. 720.111.170	662.127.000 Var. 720.111.170(2)
— 8-speed, four wheel drive with reverser	661.127.000 Var. 700.109.030	662.127.000 Var. 700.109.010
Engine type (all versions)	— FIAT 8035.04.370(°)/377(*) (C.A.V. pump)	FIAT 8045.02.270(°)/277(*) (BOSCH pump) FIAT 8045.02.370(°)/377(*) (C.A.V. pump)
WEIGHTS (8-speed version)		
Operating weight (including lift, implement attachment, swinging drawbar and ROP frame) — mod. 580 kg	2335 (5149 lb)	—
mod. 580 DT »	2651 (5766 lb)	—
mod. 680 »	—	2500 (5513 lb)
mod. 680 DT »	—	2800 (6174 lb)

(°) Engine with FERODO clutch. (*) Engine with LUK or O.M.G. clutch. (1) 68OH (see page 12 9). (2) 680H DT (see page 12 9).



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CAPACITIES

DESCRIPTION	FIAT Recommended Lubricants	CAPACITY Modd. 580-580 DT litres	pints	kg	Modd. 680-680 DT litres	pints	kg	International Designation
Engine oil (with filter and lines)	**oliofiat AMBRA**	7.6	13¼	6.8	11.7	20½	10.5	Multigrade detergent mineral oil, MIL-L-2104B EP characteristics
Sump and filter oil	**20 W/40** above 0°C	7.4	13¼	6.6	11.2	19¾	10.1	
Sump oil		6.7	11¾	6	10.6	18½	9.5	
Air cleaner (1)	**oliofiat AMBRA**	0.80	1½	0.72	0.8	1½	0.72	
Power steering fluid	**10 W/30** below 0°C	1.7	3½	1.5	1.7	3½	1.5	
Transmission oil		10	17½	9	10	17½	9	
Steering oil	**oliofiat AMBRA 20 W/40**	0.39	½	0.35	0.39	½	0.35	
Live front axle oil								
— Axle casing		4.7	8½	4.2	4.7	8½	4.2	
— Final drives (each)		1.5	2½	1.35	1.5	2½	1.35	
Brake fluid	**oliofiat AGERTER 10 W**	0.7	1¼	0.65	0.7	1¼	0.65	Single grade oil, MIL-L-2104C, API CD Serie 3
Rear axle (bevel drive, final drives, brakes) and lift oil	**oliofiat AF 87**	44.4	78½	40(2)	44.4	78½	40(2)	Mineral gear oil with stick-slip inhibiting properties
Front hub grease	**grassofiat MR 3**	—	—		—		—	Lithium based grease NLGI No. 3
Clutch withdrawal support	**grassofiat G 9**	—	—		—		—	Lithium-calcium based grease, NLGI No. 2
Lubricator grease		—	—		—		—	

Coolant (3) water and FIAT **PARAFLU 11**	580	10 litres 17½ pints
	680	13 litres 23 Pints
Fuel (diesel oil)	580-680	80 litres 17.6 GALL.

(1) Change cleaner oil when sediment is 10 mm or ½ in deep (2) 580 DT and 680 DT oil capacity is 45.5 litres or 41 kg (10 Gall.)
(3) Including expansion tank

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TIGHTENING TORQUE FIGURES

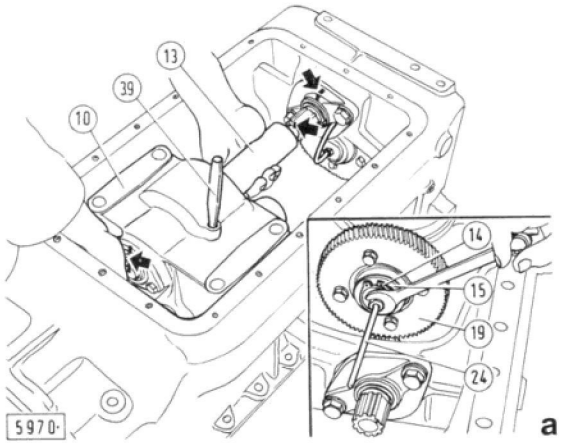
DESCRIPTION	Thread Size	Coppia di serraggio		
		Nm	kgm	ft lb
Engine Block and Cylinder Head-Valve Gear-Crank Gear				
Cap screw, cylinder head (C_1, pages 25 and 26)	M12x1.25	147	15	108
Cap screw, rocker bracket (C_2, pages 25 and 26)	M 8x1.25	23	2.3	16.5
Nut, rocker bracket	M 8x1.25	23	2.3	16.5
Cap screw, timing cover and case (C_3, pages 25 and 26)	M 8x1.25	23	2.3	16.5
Cap screw, main bearing caps (C_4, pages 25 and 26)	M14x1.5	147	15	108
Cap screw, connecting rod caps (C_5, pages 25 and 26)	M12x1.25	108	11	79
Cap screw, flywheel (C_6, pages 25 and 26)	M12x1.25	118	12	87
Nut, crankshaft pulley hub (C_7, pages 25 and 26)	M30x1.5	294	30	217
Cap screw, balancer housing to sump, 680 (C_8, page 9)	M12x2.5	147	15	108
Cap screw, fan and alternator drive pulley (C_9, pages 25 and 26)	M10x1.25	49	5	36
FUEL SYSTEM				
Nut, injection pump shaft gear:				
— BOSCH	M12x1.75	64	6.5	47
— CAV	9/16" 18 UNF	81	8.3	60
Nuts, injection pump to support	M 8x1.25	23	2.3	16.5
Thermostarter spark-plug	1/2" GAS	66	6.7	48.5
Adapter, spark-plug to thermostarter reservoir	3/8"-24UNF-2B	13	1.3	9.4

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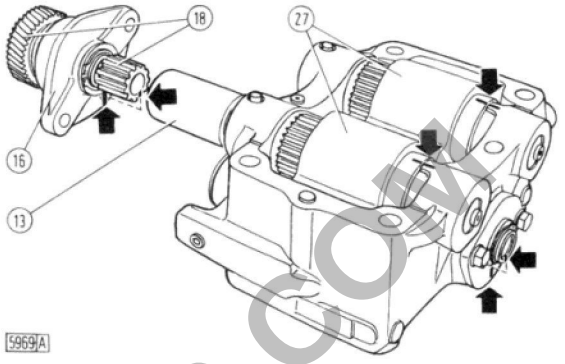
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FIAT sidan 42



Refitting Dynamic Balancer
(Timing reference marks arrowed)

a. Refitting oil tube (24) - 14. Snap ring - 15. Thrust washer - 19. Intermediate gear - 39. Locking pin



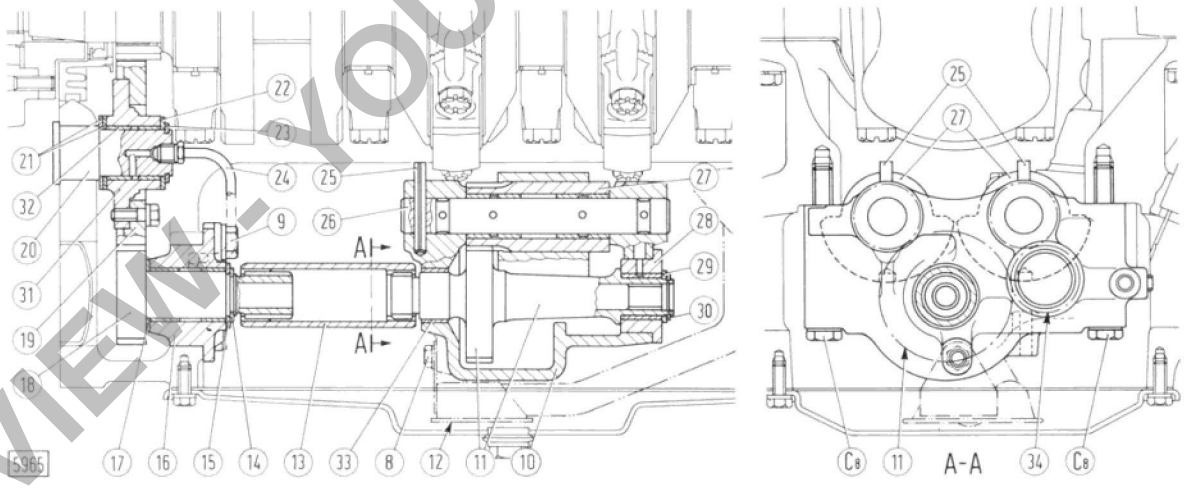
Dynamic Balancer Timing Marks with cylinder n. 1 at T.D.C. (680 Tractor)

13. Sleeve - 16. Flange - 18. Drive pinion and gear - 27. Flyweights

BALANCER TIMING (680 TRACTOR)

To time the balancer proceed as follows:

— Split pin holes in weight carriers (26) should be aligned with those in the case;
— Idler gear (34) should be positioned with the longer end facing towards the case wall.
— Secure drive gear (18) to the sump, with the reference marks aligned as shown.
— Lock the weights in position with pin (39) and check reference mark alignment.



Section through Dynamic Balancer (680 Tractor)

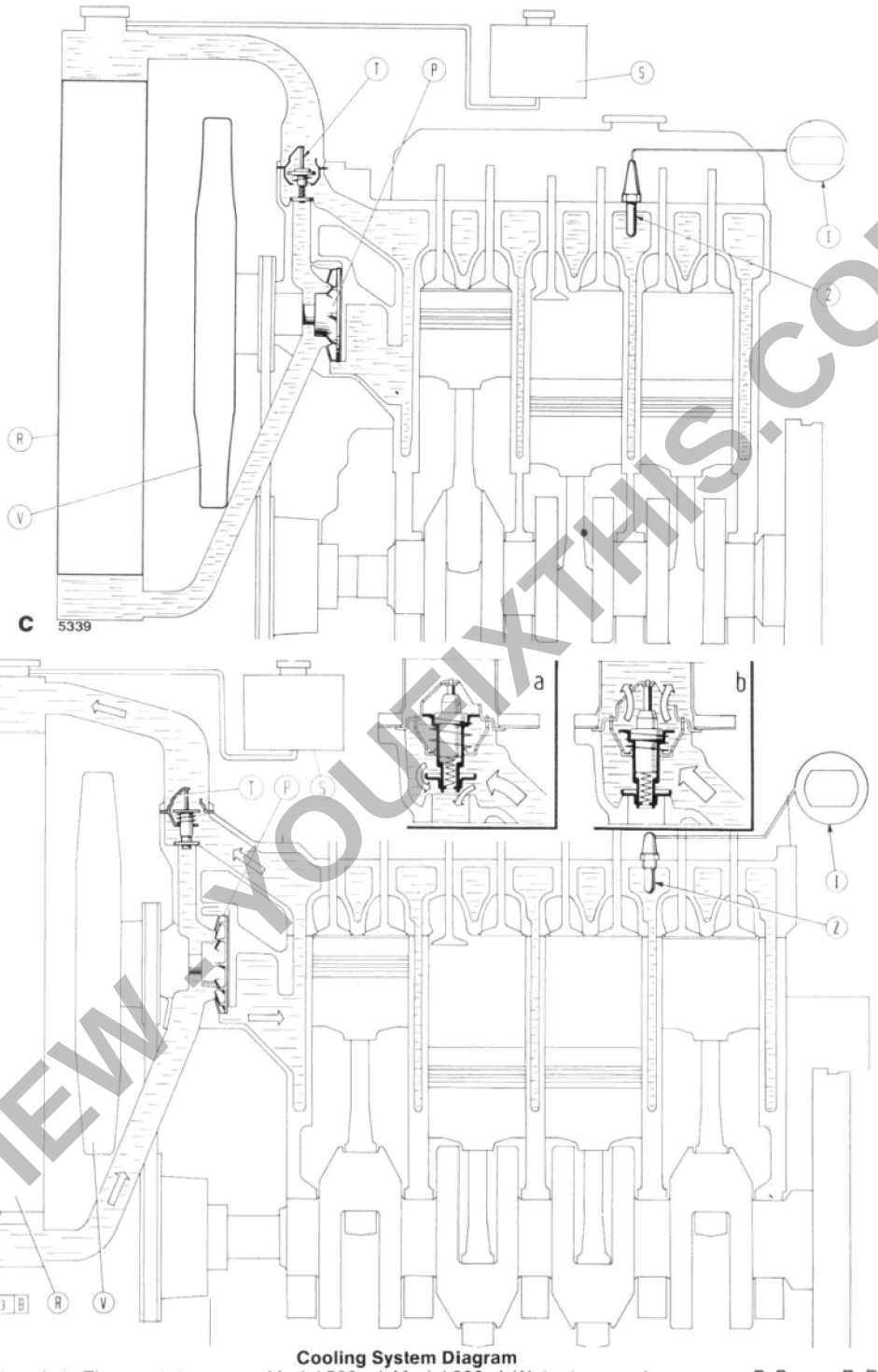
C_8. Flyweight case retaining screws - 8. Oil scoop retaining screws - 9. Flange retaining screws - 10. Case - 11. Flyweight drive gear - 12. Oil scoop - 13. Sleeve - 14. Snap ring - 15. Thrust washer - 16. Drive gear flange - 17. Thrust washer - 18. Drive pinion - 19. Intermediate gear - 20. Intermediate gear carrier - 21. Thrust washer - 22. Thrust washer - 23. Snap ring - 24. Oil tube - 25. Roll pin - 26. Flyweight carrier - 27. Flyweights - 28. Flyweight drive gear flange - 29. Thrust washer - 30. Snap ring - 31. Intermediate gear flange - 32. Bushing - 33. Bushing - 34. Idler gear

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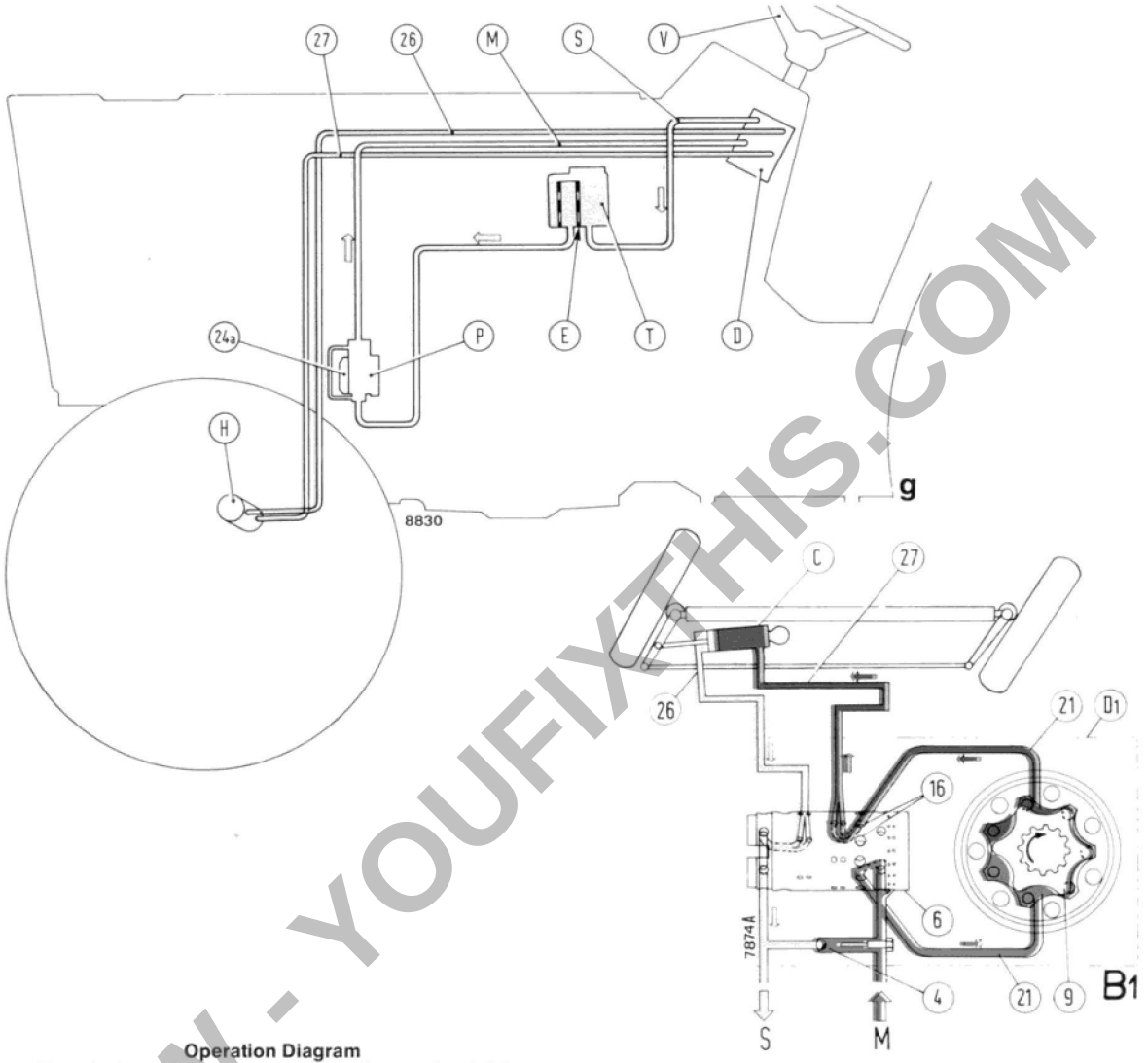


Cooling System Diagram

a. Termostat closed - b. Thermostat open - c. Model 580 - d. Model 680 - I. Water temperature gauge - P. Pump - R. Radiator S. Expansion tank - T. Thermostat - V. Fan - Z. Transmitter.

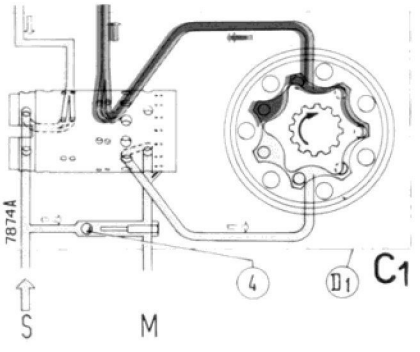
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Operation Diagram
(For missing references see the caption on the right)

A. Operation in straight-ahead driving position - B/B_1. R.H. and L.H. steer (Sd and Ss) with and without valve block (D_2) - C/C_1. R.H. and L.H. emergency steer (Sed and Ses) with and without valve block (D_2) - d. Operation diagram for straight-ahead driving (Sections D-D and F-F) - D. Hydraulic control unit including control valve (D_1) with or without valve block (D_2) - e/f. Operation diagram for two-stage R.H. steering (D-D and F-F) - E. Filter cartridge - g. Steering system schematics - H. Power cylinder - M. Pump outlet line - P. Hydraulic pump - S. Return to tank - T. Reservoir - V. Steering wheel - 23. Non-return valve of block (D_2) - 24. Relief valve of block (D_1) set to 125 bar or 127 kg/cm² (1778 psi) AM, or 100 bar or 102 kg/cm² (1452 psi) PM - 24a. Relief valve of hydraulic pump (P) set to 100 bar or 102 kg/cm² (1452 psi) - 25. Cylinder safety valves integral with block (D_2) set to 200 bar or 204 kg/cm² (2904 psi).

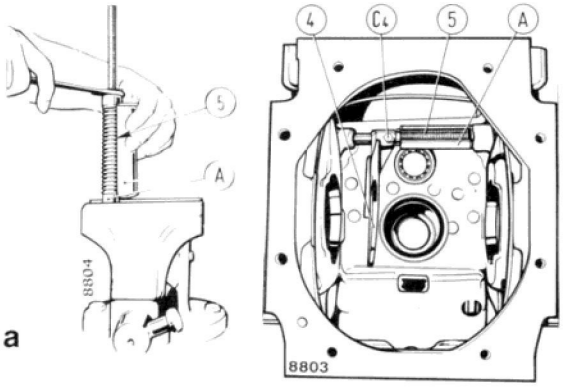


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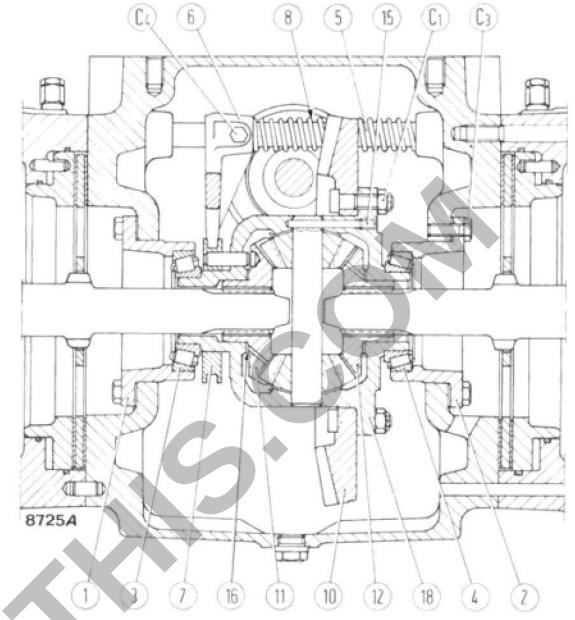
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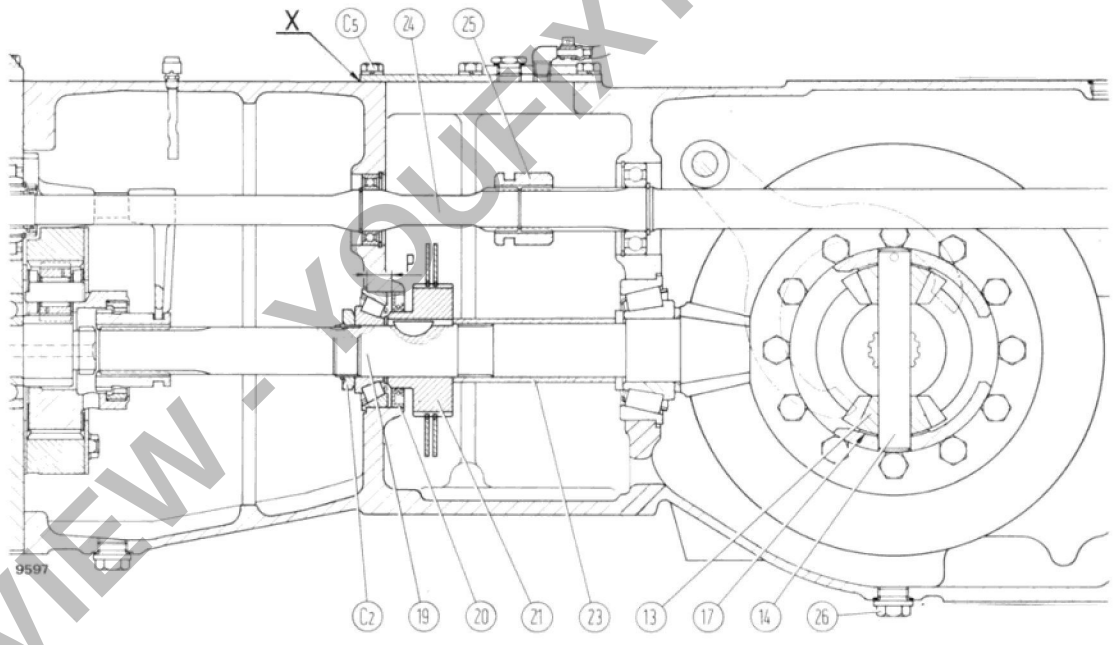
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Installing Differential Lock

a. Positioning spring on tool **293452** (A) - A. Tool **293452** - C_4. Fork screw - 4. Fork - 5. Spring.





Sections through Bevel Drive and Differential

C_1. Ring gear nut - C_2. Bevel pinion shaft nut - C_3. Differential support screws - C_4. Differential lock screw - C_5. Cover screws - P = 19 mm or O.748 in: stand of seal (20) after installation - 1/2. Differential support - 3/4. Tapered roller bearings - 5. Differential lock shaft - 6. Fork - 7. Differential lock actuating sleeve - 8. Spring - 10. Ring gear - 11/12. Differential wheels (side gears) - 13. Differential pinion - 14. Differential pinion shaft - 15. Pinion shaft screw - 16/17. Thrust washers - 18. Differential case - 19. Bevel pinion shaft - 20. Seal - 21. Parking brake hub - 23. Spacer - 24. P.T.O. shaft - 25. P.T.O. control sleeve - 26. Oil drain plug.

Note: On assembly, apply adhesive to surfaces **X** as directed in the general instructions, page 5, Section A.

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FRONT AXLE - STEERING: Power Steering

TROUBLE SHOOTING

FAULT	CAUSE	REMEDY
1. Leaking control unit.	**a.** Loose cover screws (C_2, page 9).	Tighten to prescribed torque.
	b. Damaged cover seals or sealing washer of screw (C_2).	Renew as necessary.
2. Heavy steering.	**a.** Faulty hydraulic pump.	Overhaul pump.
	b. Non-return valve (4) stuck open.	Clean valve and filter.
	c. Relief valve (24 or 24a) out of adjustment.	Reset valve.
	d. Relief valve (24 or 24a) failed or stuck open.	Remove foreign matter and clean filter. If trouble persists, renew valve block assembly OVP-20.
	e. Steering column binding in bush owing to rusting, pick-up, etc.	Remedy as necessary.
3. Loose steering.	**a.** Excessive clearance of steering column in control unit.	Renew any worn parts.
	b. Excessive clearance between shaft (7) and drive pin (1).	Renew worn parts as necessary.
	c. Excessive spline clearance on rotor (9) relative to shaft (7).	Renew worn parts as necessary.
	d. Build-up of clearances **a., b.** and **c.** above.	Renew worn parts as necessary.
	e. Failed or weakened leaf spring (2).	Renew as necessary.
4a. Slow steering.	**a.** Leaking power cylinder piston gland.	Renew gland.
4b. No steering.	**b1.** Failed power cylinder piston rod.	Renew rod.
	b2. Failed actuating shaft (7) or pin (1).	Renew failed parts as necessary.
5. Engine off, no steering.	**a.** Worn rotor (9) and cam ring (8).	Renew worn parts.
	b. Damaged non-return valve (23).	Renew valve block assembly OVP-20.

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TO OVERHAUL FERODO CLUTCH

To dismantle, reassemble and adjust the clutch use tool **291291/2** or universal tool **293650**.

To fit the clutch to tool **291291/2** proceed as follows:

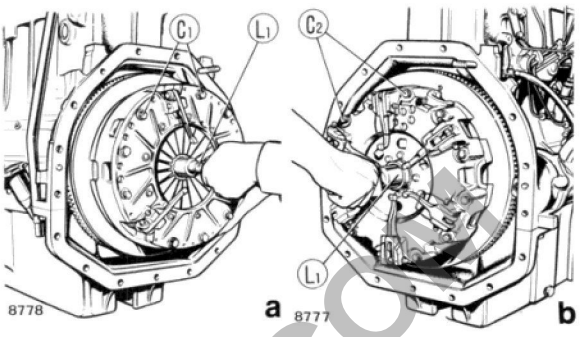
— Place spacer (B) on base plate (A) and three locators (E) over a 241 mm (9.5 in) circumference.

— Rest the clutch assembly without the P.T.O. driven plate on the base plate and secure by means of three fasteners (F) provided with guide bushes (G).

To fit clutch to universal tool **293650** proceed as follows:

— Position spacer (B) on base plate (A) with register contact surface 124.5 mm (4.901 in) above base plate and tighten at this height using locknut (D).

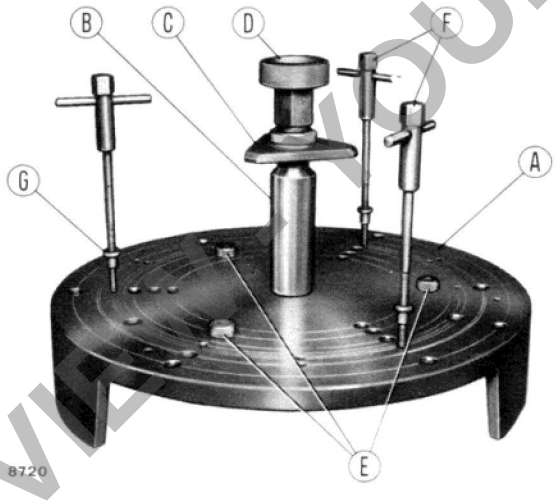
— Position adjustable locators (E) on a 240 mm (9.4 in) circumference with the top surface 9 mm (0.4 in) from base plate and tighten using handwheels (M).



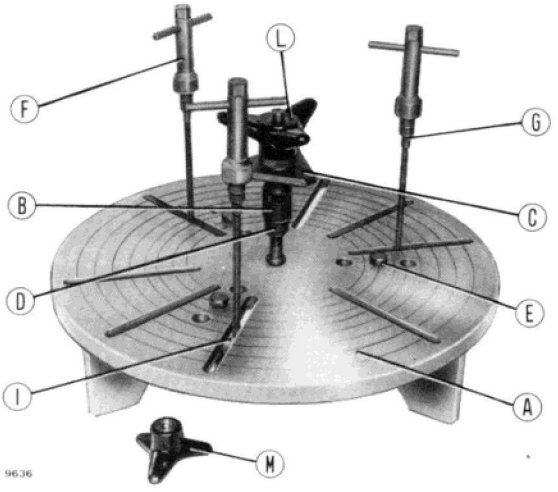
Removing the Clutch from the Flywheel
a. Ferodo 11"/11" clutch - b. LUK 11"/11" clutch or O.M.G. 11"/11" clutch - C_1/C_2. Clutch capscrews - L_1. Centraliser **291184**.

— Rest the clutch assembly without the P.T.O. driven plate on the base plate and secure by means of three fasteners (F) provided with guide bushes (G) and pads (I).

Slacken nuts (6a, page 2) and fully unscrew adjusting screws (6) using wrench **293763**



Component Parts of Ferodo Clutch Adjuster 291291/2
A. Base plate **292598** - B. Spacer **292342** - C. Register **292347** - D. Nut **292344** - E. Locators **293454** - F. Fasteners **291292/1** - G. Bushes **291293/1**.



Component Parts of FERODO Clutch Universal Adjuster 293650
A. Base plate **293332/1** - B. Spacer **293728** - C. Register **293732**- D. Locknut **293730** - E. Locators **293726** - F. Fasteners **293725** - G. Bushes **293734** - I. Pads **293755** - L. Handwheel **293739** - M. Handwheels **293740**

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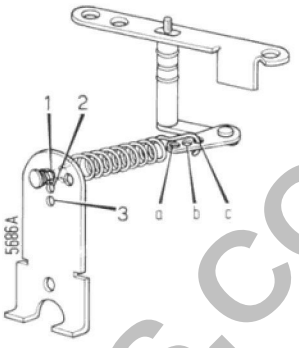
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MODEL 580 - CALIBRATION DATA - CAV INJECTION PUMP TYPE DPA 3233F700 - 771338

ASSEMBLY DATA

Pump rotation (drive end)	Anti-clockwise
Firing order	1-2-3
Governor control stud to metering valve lever pin	54 mm (2.13 in)
Roller spacing	50.2 mm (1.98 in)
Pump timing	13° ± 1° B.T.D.C.
External timing mark degree position with respect to shaft key (on tool **290757**)	271° ± 30'
Delivery connection of cylinder No. 1	Marked with letter W.



Governor Spring Attachment Position on Control Arm 1 and c

TEST PLAN

Procedure A
BOSCH test machine with WSF 2044/4X injector springs and EFEP 182 spray nozzles

RABOTTI test machine with FIAT 656829 injector springs and EFEP 182 spray nozzles

Release pressure 171.6 bar (175 kg/cm², 2483 psi)

Pipes 2x6x865 mm

Procedure B
Test machine incorporating injector bodies and nozzles as fitted to the engine

Release pressure 221 to 230 bar (225 to 235 kg/cm², 3200 to 3 343 psi)

Pipes 2x6x700 mm

Calibration fluid FIAT CFB at 20° to25°C

Fuel pressure 0.2 bar (0.2 kg/cm², 2.8 psi)

Test No.	Lever Position L_1 = Throttle L_2 = Shut-off	Speed rpm	Transfer pressure bar (kg/cm²)	Advance degrees	PROCEDURE A: Injector delivery cm³/1000 shots	PROCEDURE A: Back leakage cm³/100 shots	PROCEDURE B: Injector delivery cm³/1000 shots
1-2	—	100	⩾1	—	—	—	—
3	—	800	—	4 to 5	—	—	—
4	—	1200	—	10.3 to 10.8	—	—	—
5	—	180 max	—	3.3 to 3.5	—	—	—
6 (1)	—	300	—	0	—	—	—
7 (2)	—	1200	—	10.3 to 10.8	—	—	—
8-9-10 (3)	L_1 = Full L_2 = Out	1350 $^{+0}_{-20}$	5 to 6	—	55.5 to57.5 (°)	⩾ 14	54.5 to 56.5 (°)
11-12		800 ± 5	2.8 to 3.8	—	55 to 58 (°)	—	60.5 to 63.5 (°)
13 (1)		100	—	—	⩾ 42	—	—
14	L_1 = Full L_2 = In	200	—	—	4 max	—	—
15 (3)	L_1 = Idle L_2 = Out	200	—	—	5 max	—	—
16 (4)	L_1 = Full L_2 = Out	1475	—	—	3 max	—	—
17 (5)		1350 $^{+0}_{-20}$	—	—	55.5 to 57.5	—	—

(°) Max. spread 2 cm³/1000 shots
(1) Manual start-retard activated
(2) 3-cylinder engine only
(3) Back off throttle lever adjusting screws fully
(4) Governor cut-in. Adjust maximum speed screw
(5) Recheck fuelling

DIREZIONE COMMERCIALE

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