FIAT

55–75 60–75 70–75 80–75

WORKSHOP MANUAL

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

06910094

Reprinted

06910094

FIAT

55–75 60–75
70–75 80–75

WORKSHOP MANUAL

QUICK REFERENCE INDEX

Section

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

FOREWORD

This Appendix is provided in completion of Workshop Manual for Series 65 track models, including new models 55–75, 60– 75, 70–75 and 80–75.
This updating includes all the technical information required for the tractor repair.
For any unchanged part not dealt with herein, refer to the basic Workshop Manual for models 55–65, 60–65, 70–65 and 80– 65 (as specified in the index and the text).
To this end, remember that:
– mod. 55–65 was replaced by mod. 55–75;
– mod. 60–65 was replaced by mod. 60–75;
– mod. 70–65 was replaced by mod. 70–75;
– mod. 80–65 was replaced by mod. 80–75.

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Page

(*) See Workshop Manual for models 55–65, 60–65, 70–65 and 80–65

GENERAL INSTRUCTIONS: see description at pages 5 and 6, Section A of the Workshop Manual, mod. 55–65, 60–75, 70–65 and 80–65, and the following paragraph as well.

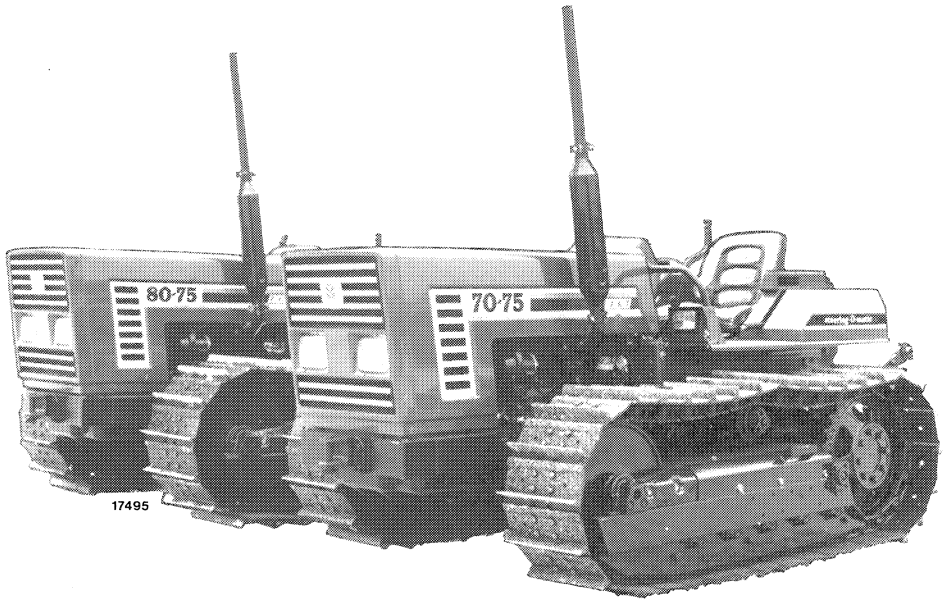
HOW TO DRIVE THE TRACTOR WITHOUT BATTERY

The outer feeder cable ends must be connected only to the relevant terminals of the tractor positive and negative cables, using suitable pliers for a proper and stable contact.
Disconnect all the users (lights, windscreen wipers and so on) before starting the tractor.
If the tractor electrical system must be checked, make sure that the feeder is connected. Once the check has ended, disconnect all the users and disengage the feeder before disconnecting its cables.

IDENTIFICATION DATA

Marketing codes:				
– basic model	**55–75**	**60–75** steering–0–matic	**70–75** steering–0–matic	**80–75** steering–0–matic
– vineyard version	**55–75V**	**60–75V**	–	–
– mountain version	**55–75M**	**60–75M** steering–0–matic	**70–75M** steering–0–matic	–
Engineering codes:				
– basic model (8 speed)	665.208.000	666.200.000	667.200.000	668.200.000
– 16 speed version	665.208.000 var.700.111	666.200.000 var.700.111	667.200.000 var.700.111	668.200.000 var.700.111
– reverser version	665.208.000 var.700.110	666.200.000 var.700.110	667.200.000 var.700.110	668.200.000 var.700.110
– 8 speed vineyard version	665.206.000	666.206.000	–	–
– 16 speed vineyard version	665.206.000 var.700.111	666.206.000 var.700.111	–	–
– 8 speed mountain version	665.300.000	666.202.000	667.202.000	–
– 16 speed mountain version	665.300.000 var.700.111	666.202.000 var.700.111	667.202.000 var.700.111	–
Engine:				
– make	FIAT			
– codes([1])	8035.06.208	8035.05.206	8045.06.206	8045.05.206
	(with BOSCH pump)			
	8035.06.309	8035.05.307	8045.06.307	8045.05.307
	(with C.A.V. pump)			

([1]) The 60–75 Vineyard version is equipped with FIAT 8035.05.208 (BOSCH pump) or 8035.05.309 (C.A.V. pump) engines.



WEIGHTS: operating weight, including hydraulic lift and implement carrier, tow hooks, full fuel tank and operator (*):	**55–75**		**60–75**		**70–75**		**80–75**	
	kg	lb	kg	lb	kg	lb	kg	lb
– Basic model	2840	6261	–	–	–	–	–	–
– Vineyard version	2790	6150	2790	6150	–	–	–	–
– Mountain version	2940	6481	–	–	–	–	–	–
– Steering–O–matic model	–	–	3290	7253	3550	7826	3950	8708
– Steering–O–matic Mountain version	–	–	3410	7517	3670	8090	–	–
	bar	psi	bar	psi	bar	psi	bar	psi
Specific ground pressure(1)	0.38(2)	5.40	0.38(3)	5.40	0.38(3)	5.40	0.34(4)	4.83
ENGINE	see Workshop Manual, mod. 55–65, 60–65, 70–65 and 80–65 and the following remarks							
Fuel system								
Air cleaner	oil–bath or dry cartridge, centrifugal pre–cleaner with automatic dust unloader(5)							
Fuel cleaner (on fuel transfer pump delivery)	integral single filter with water trap				two, in line, disposable paper cartridge (water trap integral with first stage filter).			
Segregator: it achieves a first trapping of water possibly present in fuel line	–		optional (upon demand) (6)					
Injection pump	rotary distributor, with incorporated special governor and advance variator							
– Type: BOSCH	see mod. 55–65, 60–65, 70–65 and 80–65							
– Type: C.A.V.: pre–modification	DPS8522A 070A 4817259		DPS8520A 410A 4817262		DPS8520A 400A 4817261		DPS8520A 410A 4817262	
– Type: C.A.V.: post–modification	DPS8522A160A 98404117		DPS8522A150A 98404116		DPS8520A780A 98404123		DPS8520A790A 98404124	
– Injector type	see page 10, sect. 10							
– Nozzle opening pressure	see page 10, sect. 10							

(*) Weight increases by 15 kg (33 lb) for 16 speed version and by 20 kg (44 lb) for reverser version.
(1) Calculated for Basic models.
(2) With size 280 mm (11 in) track shoes.
(3) With size 310 mm (12 in) track shoes.
(4) With size 360 mm (14 in) track shoes.
(5) Steering–O–matic models are supplied only with dry air filter.
(6) Excluding model 60–75 Vineyard.

POWER TRAIN

Master clutch

11" 1/2 dry single plate (models 55–75 and 60–75) or 11" 1/2 dry twin plate (models 70–75 and 80–75). Overcentre engagement and hand lever control on RH side of operator.

Post–release brake to facilitate gear engagement.

Organic agglomerate facings.

PTO clutch (see models 55–65, 60–65, 70–65 and 80–65).

Transmission and splitter (see models 55–65, 60–65, 70–65 and 80–65).

Differential bevel drive.

Ratio: 9/47.
Centrally located in rear drive housing.

Final drives.

Single–reduction, straight spur gears.
Reduction ratio: 5.58 model 60–75, excluding 60–75 Vineyard, 70–75 and 80–75, or 5.64 model 55–75 all versions and 60–75 Vineyard.

Steering clutches

Multi–disc, dry, mechanically operated by two hand levers mod. 55–75 all versions and 60–75 Vineyard, or hydraulically operated by a single control lever on the cowl center, an hydraulic pump, a valve unit and the clutch release pistons, model 60–75, excluded 60–75 Vineyard, 70–75 and 80–75.

Number of driven discs (each clutch):
– Model 55–75 all versions and 60–75 Vineyard . . . 8
– Model 60–75, excluded 60–75 Vineyard, 70–75 and 80–75 10

Disc facing material: asbestos fabric.

Brakes (see models 55–65, 60–65, 70–65 and 80–65)

Power take–off (see models 55–65, 60–65, 70–65 and 80–65).

UNDERCARRIAGE SUSPENSIONS

Rear suspension by cross beam fixed in front of final drive cases.

Front suspension by transverse leaf spring.

Track frames incorporating front guides, each with one carrier roller (optional for models 55–75 all versions and 60–75 Vineyard, standard for models 60–75 excluding 60–75 Vineyard, 70–75 and 80–75) and with four track rollers – models 55–75 and 60–75 – or six track rollers – models 70–75 and 80–75.

Hydraulically–adjustable, coil spring type idlers.

Oil–bath, long–life sealed track rollers and idlers.

Number of links for each track:

– model 55–75 70
– model 60–75 66
– model 70–75 72
– model 80–75 74

Track shoe widths:
250 mm (10 in) model 55–75 Vineyard and 60–75 Vineyard, 280 mm (11 in) model 55–75, 300 mm (12 in) model 55–75 Mountain, 310 mm (12.20 in) model 60–75 and 70–75 and 360 mm (14 in) model 60–75 Mountain, 70–75 Mountain and 80–75.

Optional:
280 mm (11 in) model 55–75 Vineyard and 60–75 Vineyard, 300 mm (12 in) model 55–75 and 400 mm (15.7 in) model 70–75 Mountain and 80–75.

For tractor roading all models may be provided with track shoe pads.

HYDRAULIC LIFT UNIT

See Workshop Manual for models 55–65, 60–65, 70–65 and 80–65. Models 60–75, 70–75 and 80–75 (Steering–O–matic versions) have a push–button for automatically lifting and resetting the working position (Lift–O–Matic).

Remote control valves

One or two remote control valves for models 55–75 all versions and 60–75 Vineyard.
– Convertible single or double–acting type;
– Double acting with float control position.

One, two, three or four remote control valves for models 60– 75, excluded 60–75 Vineyard, 70–75 and 80–75:
– Convertible single or double–acting type;
– Double acting with float control position and automatic release.

They are provided with 1/2" quick disconnect coupler sets for single or double–acting remote power cylinders.

TOWING ATTACHMENTS (see models 55–65, 60–65, 70–65 and 80– 65).

FRONT BALLASTING

Optional: 30 kg (66 lb) ballast weights, up to a maximum quantity of 3, for a total weight of 90 kg (198 lb).

BODY

Forward tiltable front hood, partially openable on the sides.

Rear cowl including instrument panel, two brackets for fenders, mudguard and footboard mounting, and a platform for operator's seat support.

Fenders and footboards are of integral design.

Wrap–around, padded Operator's seat with hydraulic suspension and various adjustments.

Fuel tank located at rear end – model 55–75 (all versions) and 60–75 Vineyard – having a capacity of 50 l (11 imp. gall. – 13.2 Am. gall.), or under the hood in front of the radiator – model 60–65 (excluded 60–75 Vineyard), 70–75 and 80–75 – having a capacity of 80 l (17,5 imp. gall. – 21.1 Am. gall.).

Standard routine maintenance tool box located in a special housing on RH fender, model 55–75 (all versions) and 60–75, or on the operator's seat back – model 60–75 (excluded 60–75 Vineyard), 70–75 and 80–75.

Optional: ROPS frame with or without canopy.

ELECTRICAL SYSTEM (12 V)

Alternator with integral electronic voltage regulator.

Type: BOSCH G 1 14V–33A27, MARELLI AA108 – 14V33A–1, ISKRA– AAG 1104–14V–33A or LUCAS 18ACR–14V–40A.

Starter motors:
Model 55–75 and 60–75:
– BOSCH . . . . . JF 12V
– LUCAS 2M 113
– MARELLI . . . . . MT 71AA

Model 70–75 and 80–75:
– BOSCH . . . . . JF 12V
– MARELLI . . . . . MT 68AC
– C.A.V. . . . . CA 45 G12 – 117

Battery located ahead of engine radiator – model 55–75 (all versions) and 60–75 Vineyard, capacity 90 or 100 Ah, or in the suitable space of the LH housing – model 60–75 (excluded 60–75 Vineyard), 70–75 and 80–75.

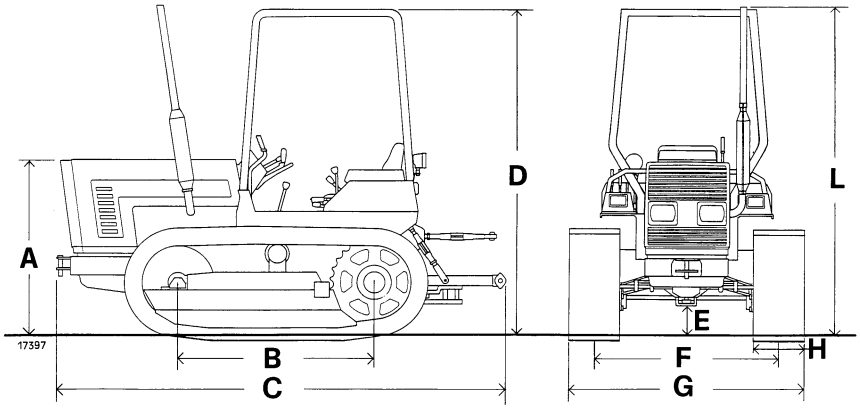
Lighting equipment

Head lamps: high and asymmetric low beam (40–45 W). Two, front position lamps (5 W).

Two tail lamp units: position and number plate lights (5 W) with reflex reflectors.

Instrumentation and accessories

Multiple–indication instrument panel and control board.
Rear work lamp (35 W).
Starter inhibitor safety device on clutch lever.
Cold–starting aid.
Fuses: seven 8A and one 16A housed in a box.

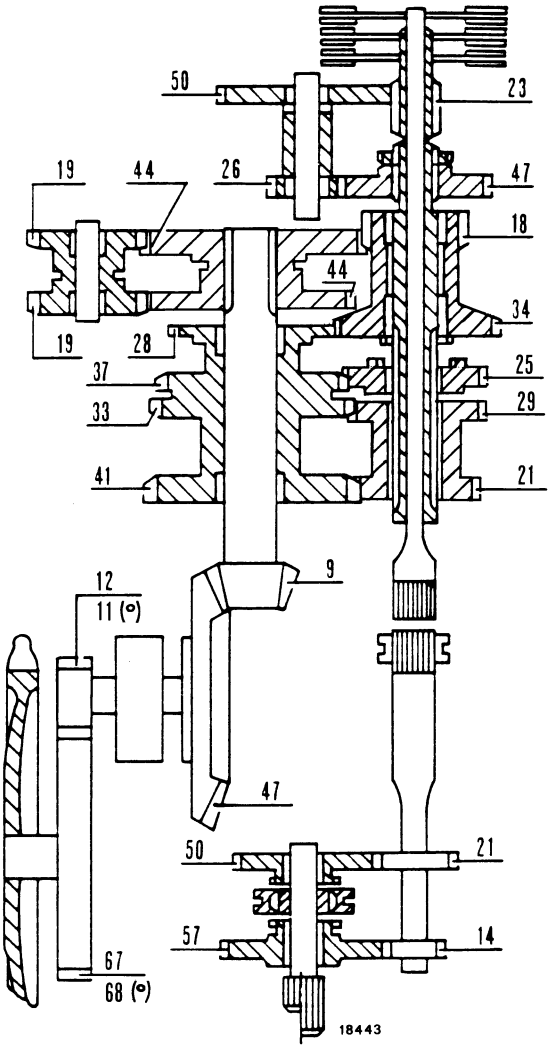


Models	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	L mm
55–75	1090(1)	1341(1)	2790(1)	2015(1)	255(1)	1300 900(1)(2)	1580 1150(1)(2) 1600(3)	280 250(1)(2) 300(3)	–
60–75	1200	1376	3105	2150	210	1100 1300(3)	1410 1600(3)	310	2220
70–75	1200	1586	3220	2150	210	1100 1300(3)	1410 1600(3)	310	2220
80–75	1200	1656	3220	2150	210	1300	1660	360	2220

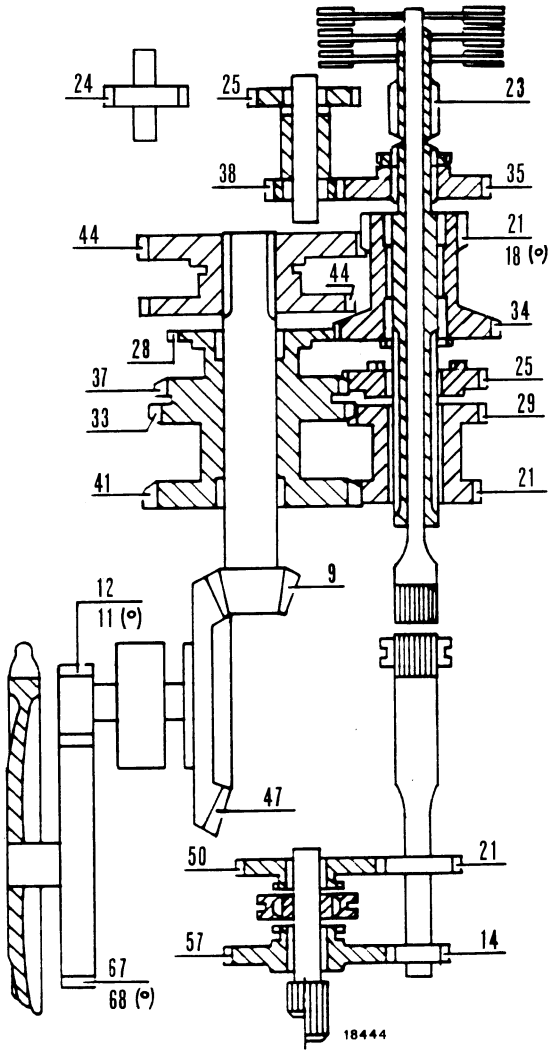
(1) Figures valid also for model 60–75 Vineyard – (2) Vineyard version – (3) Mountain version – (*) For dimensions in inches multiply by 0.04.

POWER TRAIN SCHEMATICS

Creeper version



Mechanical reverser version



(o) For model 55–75 all versions and 60–75 Vineyard.

TRACTOR SPEED WITH ENGINE AT MAX. POWER SPEED RATE

GEAR		Standard and creeper		Reverser	
		kph	mph	kph	mph
Creeper range	1a	0.4	0.25	–	–
	2a	0.6	0.37	–	–
	3a	0.7	0.43	–	–
	4a	1.0	0.62	–	–
Low range	1a	1.3	0.81	–	–
	2a	1.7	1.06	–	–
	3a	2.2	1.37	–	–
	4a	3.0	1.86	–	–
Normal range	1a	1.7	1.06	1.7	1.06
	2a	2.2	1.37	2.2	1.37
	3a	2.9	1.80	2.9	1.80
	4a	4.0	2.50	4.0	2.50

GEAR		Standard and creeper		Reverser	
		kph	mph	kph	mph
High range	1a	5.0	3.1	5.0	3.1
	2a	6.6	4.1	6.6	4.1
	3a	8.6	5.3	8.6	5.3
	4a	11.9	7.4	11.9	7.4
Low reverse	1a	0.8	0.5	1.7	1.06
	2a	1.1	0.7	2.2	1.37
	3a	1.4	0.9	2.9	1.80
	4a	1.9	1.2	4.0	2.50
High range	1a	3.2	2.0	5.0	3.1
	2a	4.2	2.6	6.6	4.1
	3a	5.5	3.4	8.6	5.3
	4a	7.6	4.7	11.9	7.4

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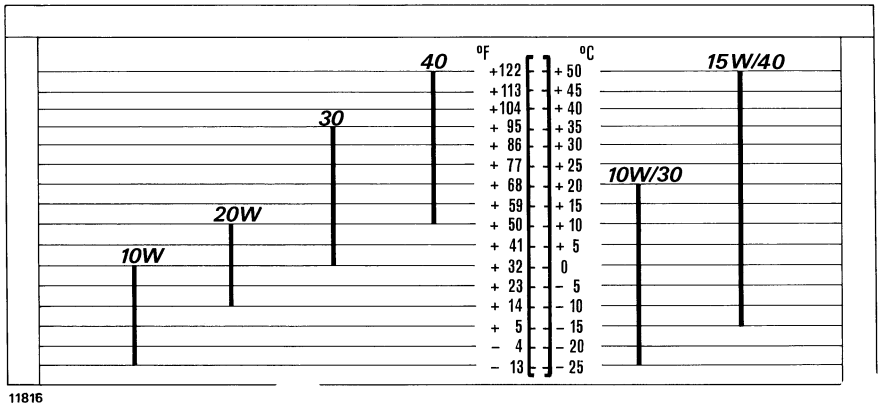
CAPACITIES

DESCRIPTION	FIAT RECCOMENDED PRODUCT	CAPACITIES												INTERNATIONAL DESIGNATION
		55–75			60–75			70–75			80–75			
		dm^3 litres	Imp gall.	USA gall.	dm^3 litres	Imp gall.	USA gall.	dm^3 litres	Imp gall.	USA gall.	dm^3 litres	Imp gall.	USA gall.	
Sump and filter oil	**Oliofiat AMBRA SUPER(2)**	7.3	$1^1/_3$	1.9	7.3	$1^1/_3$	1.9	11.2	$2^1/_2$	3	11.2	$2^1/_2$	3	Diesel engine oil to MIL – L – 2104 D and Service API CD.
Sump oil		6.7	$1^1/_2$	1.8	6.7	$1^1/_2$	1.8	10.5	$2^1/_3$	2.8	10.5	$2^1/_3$	2.8	
Air cleaner oil (1)		0.95(°)	$1^2/_3$ pts	0.25	–	–	–	–	–	–	–	–	–	
Power train (transmission, bevel drive) and lift	**Oliofiat TUTELA MULTI F**	33.3	$7^1/_3$	8.8	33.3	$7^1/_3$	8.8	33.3	$7^1/_3$	8.8	33.3	$7^1/_3$	8.8	Transmission, oil bath brakes and lift oil to Massey Ferguson MF 1135 and Ford M 2 C 86 A. Specification API: to Service GL4. Viscosity grade: SAE 20W/30.
Track idlers, carrier rollers, track rollers, track frames		–	–	–	–	–	–	–	–	–	–	–	–	
Final drives (each)	**TUTELA W90/M – DA**	2.0(°)	$3^1/_2$ pts	0.5	3.5(*)	$6^1/_2$ pts	0.9	3.5	$6^1/_2$ pts	0.9	3.5	$6^1/_2$ pts	0.9	Mechanical transmission oil to MIL – L – 2105C and Service API GL5. Viscosity grade: SAE 80W/90.
Steering clutch	**Oliofiat AMBRA SUPER 10 W**	–	–	–	1.4(*)	$2^1/_2$ pts	0.37	1.4	$2^1/_2$ pts	0.37	1.4	$2^1/_2$ pts	0.37	MIL – L 2104D and API CD – SAE 10 W oil.
Pressure lubricators	**Grassofiat TUTELA G 9**	–	–	–	–	–	–	–	–	–	–	–	–	Lithium–calcium grease to NL GI 2.
Coolant	Water and FIAT "**PARAFLU 11**" (3)	10.5	$2^1/_3$	2.8	10.5	$2^1/_3$	2.8	13	$2^3/_4$	3.4	13	$2^3/_4$	3.4	–
Fuel tanks	Decanted and filtered diesel fuel	50(°)	11	13.2	80(*)	17 $^1/_2$pint	21.1	80	17 $^1/_2$pint	21.1	80	17 $^1/_2$pint	21.1	

(°) Figures valid also for model 60–75 Vineyard.
(*) Excluded model 60–75 Vineyard.
(1) Renew air cleaner oil when accumulated sludge in bowl exceeds 1 cm (4 in) thickness.
(2) Use SAE viscosity grades according to prevailing outdoor temperature (see table).
(3) This fluid features oxidation, corrosion, foaming and tection down to: –8°C, –15°C, –25°C and –35°C with "**PARAFLU 11**" concentration of 20%, 30%, 40% and 50% respectively. This solution is used as a permanent anti–freeze in the system for **2 years** or **1600 working hours** whichever occurs first.



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FUEL SYSTEM

Feed pump and pump drive		See page 9, section 10 of Workshop Manual, model 55–65, 60–75, 70–65 and 80–65
Injection pump		Distributor, integral governor and advance device
– BOSCH		(see Workshop Manual, model 55–65, 60–65, 70–65 and 80–65)
– C.A.V.	model. 55–75	DPS 8522A 070A – 4817259 (pre–modification)
	model. 55–75	DPS 8522A 160A – 98404117 (post–modification)
	model. 60–75	DPS 8522A 060A – 4817258 (pre–modification)
	model. 60–75	DPS 8522A 150A – 98404116 (post–modification)
	model. 70–75	DPS 8520A 410A – 4817262 (pre–modification)
	model. 70–75	DPS 8520A 790A – 98404124 (post–modification)
	model. 80–75	DPS 8520A 400A – 4817261 (pre–modification)
	model. 80–75	DPS 8520A 780A – 98404123 (post–modification)
Direction of rotation		counterclockwise
Release order	model 55–75 and 60–75	1 – 2 – 3
	model 70–75 and 80–75	1 – 3 – 4 – 2

Fuel injectors	**55–75 and 70–75**	**60–75 and 80–75**
For engines with BOSCH type injection pump	(See Workshop Manual model 55–65, 60–65, 70–75 and 80–75)	
For engines with CAV type injection pump:		
– BOSCH:	4824164	4824170
– nozzle holder	KBEL 83S35–4791124	KBEL 83S35–4791124
– spray nozzle	DLLA 134S1113 – 4824165	DLLA 138S1112 – 4824 171
Number of spray orifices	4	3
Spray orifice diameter	0.31 mm (0.012 in)	0.35 mm (0.0137 in)
Release pressure	260 to 268 bar (265 to 273 kg/cm^2)	

Delivery pipes	See page 10, section 10 of Workshop Manual, model 55–65, 60–65, 70–65 and 80–65

MODEL 55–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8522 A 070A – 4817259 (PRE–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) . . . . . counterclockwise

Release order . . . . . 1 – 2 – 3

Governor control stud to metering valve lever pin . . . . . 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter . . . . . 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: . . . . . ISO 4113 at 42° ± 2°C

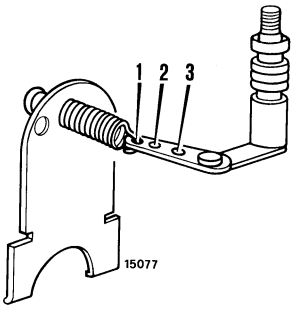
Fuel pressure: . . . . . 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: . . . . . 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 4093.2)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut



Control spring in hole 2

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 2 mm (0.07 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed rpm	Advance degrees	Transfer pressure bar (kg/cm^2)	Injector delivery cm^3/200 shots	Spread cm^3/200 shots	Back leakage cm^3/100 shots
1([1])		200	–	–	–	–	–
2([2])		1000	–	–	–	–	–
3		100	–	≥ 0,3	–	–	–
4(+)		750	–	–	–	–	–
5([3]) – 6		750	2.75 to 3.00	3.4 to 4.5	–	–	–
7([4])	max	1000	3.75 to 4.75	–	–	–	–
8 – 9		750	–	–	10.2 to 10.4(*)	≤1	40 to 90(°)
10([5])		1250	–	–	–	–	–
11([6])		1420	–	–	1.5 to 2	–	–
12([7])		1250	–	–	–	–	–
13([8])		350	0.75 to 1.75	–	–	–	–
14([9])		250	0	–	≥16	–	–
15([10])		850	–	–	–	–	–
16([11])	min	325	–	–	2 to 2.5	–	–
17([12])		325	–	–	≤0,8	–	–
18([13])		325	–	–	≤0,5	–	–
19([14])		–	–	–	–	–	–

([1]) Delivery to all injectors.
([2]) Run pump for 3'.
([3]) Set pressure adjusting screw for specified advance and check that pressure is as specified.
([4]) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
([5]) Record average delivery.
([6]) Adjust max speed screw and block in position.
([7]) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
([8]) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
([9]) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
([10]) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
([11]) Adjust idle speed screw.
([12]) Shut–off lever closed.
([13]) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
([14]) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 9.75°.
(') Take reading after 15" (°)Flow: 300 to 600 cm^3/minute.
(*) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

MODEL 60–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8522 A 060A – 4817258 (PRE–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) . . . . . counterclockwise

Release order . . . . . 1 – 2 – 3

Governor control stud to metering valve lever pin . . . . . 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter . . . . . 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: . . . . . ISO 4113 at 42° ± 2°C

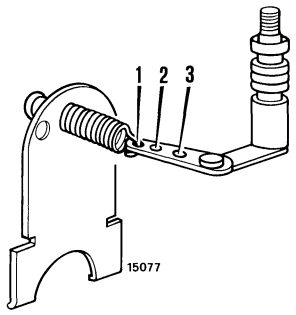
Fuel pressure: . . . . . 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: . . . . . 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 40932)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut



Control spring in hole 2

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 2.5 mm (0.1 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed rpm	Advance degrees	Transfer pressure bar (kg/cm^2)	Injector delivery cm^3/200 shots	Spread cm^3/200 shots	Back leakage cm^3/100 shots
1(1)	max	200	–	–	–	–	–
2(2)		1000	–	–	–	–	–
3		100	–	≥ 0.3	–	–	–
4(+)		750	–	–	–	–	–
5(3) – 6		750	4.25 to 4.50	3.4 to 4.5	–	–	–
7(4)		1000	5.75 to 6.75	–	–	–	–
8 – 9		750	–	–	10.9 to11.1(*)	≤1	40 to 90(°)
10(5)		1250	–	–	–	–	–
11(6)		1420	–	–	1.5 to 2	–	–
12(7)		1250	–	–	–	–	–
13(8)		350	2.75 to 3.75	–	–	–	–
14(9)	min	250	0	–	≥16	–	–
15(10)		850	–	–	–	–	–
16(11)		325	–	–	2 to 2.5	–	–
17(12)		325	–	–	≤0.8	–	–
18(13)		325	–	–	≤0.5	–	–
19(14)		–	–	–	–	–	–

(1) Delivery to all injectors.
(2) Run pump for 3'.
(3) Set pressure adjusting screw for specified advance and check that pressure is as specified.
(4) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
(5) Record average delivery.
(6) Adjust max speed screw and block in position.
(7) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
(8) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
(9) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
(10) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
(11) Adjust idle speed screw.
(12) Shut–off lever closed.
(13) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
(14) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 8.75°.
(') Take reading after 15" (°)Flow: 300 to 600 cm^3/minute.
(*) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

MODEL 70–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8520 A 410A – 4817262 (PRE–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) . . . . . counterclockwise

Release order . . . . . 1 – 3 – 4 – 2

Governor control stud to metering valve lever pin . . . . . 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter . . . . . 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: . . . . . ISO 4113 at 42° ± 2°C

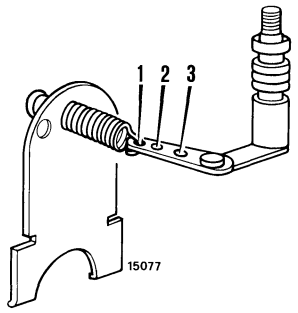
Fuel pressure: . . . . . 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: . . . . . 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 4093.2)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut



Control spring in hole 2

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 3 mm (0.11 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed rpm	Advance degrees	Transfer pressure bar (kg/cm^2)	Injector delivery cm^3/200 shots	Spread cm^3/200 shots	Back leakage cm^3/100 shots
1([1])		200	–	–	–	–	–
2([2])		1000	–	–	–	–	–
3		100	–	≥ 0,3	–	–	–
4(+)		900	–	–	–	–	–
5([3]) – 6		900	4.5 ([15])	4.1 to 5.4	–	–	–
7([4])	max	1250	6.75 to 7.75([16])	–	–	–	–
8 – 9		750	–	–	9.1 to 9.3(*)	≤1	40 to 80(°)
10([5])		1250	–	–	–	–	–
11([6])		1420	–	–	1.5 to 2	–	–
12([7])		1250	–	–	–	–	–
13([8])		350	1.75 to 2.75	–	–	–	–
14([9])		250	0	–	≥16	–	–
15([10])		850	–	–	–	–	–
16([11])	min	325	–	–	2 to 2.5	–	–
17([12])		325	–	–	≤0.8	–	–
18([13])		325	–	–	≤0.5	–	–
19([14])		–	–	–	–	–	–

([1]) Delivery to all injectors.
([2]) Run pump for 3'.
([3]) Set pressure adjusting screw for specified advance and check that pressure is as specified.
([4]) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
([5]) Record average delivery.
([6]) Adjust max speed screw and block in position.
([7]) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
([8]) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
([9]) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
([10]) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
([11]) Adjust idle speed screw.
([12]) Shut–off lever closed.
([13]) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
([14]) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 8.75°.
([15]) 3.6 mm (0.14 in) ([16])From 5.4 to 6.2 mm (0.21 to 0.24 in)
(*) Take reading after 15" (°)Flow: 300 to 600 cm^3/minute.
(+) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

MODEL 80–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8520 A 400A – 4829230 (PRE–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) . . . . . counterclockwise

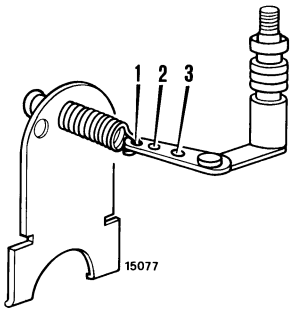
Release order . . . . . 1 – 3 – 4 – 2

Governor control stud to metering valve lever pin . . . . . 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter . . . . . 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**



Control spring in hole 2

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: . . . . . ISO 4113 at 42° ± 2°C

Fuel pressure: . . . . . 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: . . . . . 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 4093.2)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 3 mm (0.11 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed rpm	Advance degrees	Transfer pressure bar (kg/cm^2)	Injector delivery cm^3/200 shots	Spread cm^3/200 shots	Back leakage cm^3/100 shots
1(1)		200	–	–	–	–	–
2(2)		1000	–	–	–	–	–
3		100	–	≥ 0.3	–	–	–
4(+)		900	–	–	–	–	–
5(3) – 6		900	4.5 (15)	4.1 to 5.4	–	–	–
7(4)	max	1250	5.75 to 6.75(16)	–	–	–	–
8 – 9		750	–	–	10.1 to 10.3(*)	≤1	40 to 80(°)
10(5)		1250	–	–	–	–	–
11(6)		1420	–	–	1.5 to 2	–	–
12(7)		1250	–	–	–	–	–
13(8)		350	1.75 to 2.75	–	–	–	–
14(9)		250	0	–	≥16	–	–
15(10)		850	–	–	–	–	–
16(11)	min	325	–	–	2 to 2.5	–	–
17(12)		325	–	–	≤0.8	–	–
18(13)		325	–	–	≤0.5	–	–
19(14)		–	–	–	–	–	–

(1) Delivery to all injectors.
(2) Run pump for 3'.
(3) Set pressure adjusting screw for specified advance and check that pressure is as specified.
(4) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
(5) Record average delivery.
(6) Adjust max speed screw and block in position.
(7) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
(8) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
(9) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
(10) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
(11) Adjust idle speed screw.
(12) Shut–off lever closed.
(13) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
(14) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 7.5°.
(15) 3.6 mm (0.14 in) (16)From 5.4 to 6.2 mm (0.21 to 0.24 in)
(') Take reading after 15" (°)Flow: 300 to 600 cm^3/minute.
(*) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

MODEL 55–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8522 A 160A – 98404117 (POST–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) . . . . . counterclockwise

Release order . . . . . 1 – 2 – 3

Governor control stud to metering valve lever pin . . . . . 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter . . . . . 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: . . . . . ISO 4113 at 42° ± 2°C

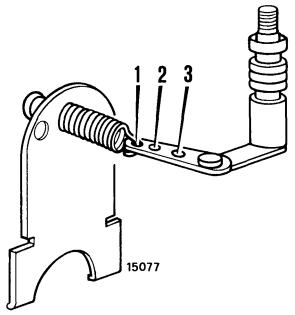
Fuel pressure: . . . . . 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: . . . . . 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 4093.2)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut



Control spring in hole 2

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 2 mm (0.07 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed	Advance	Transfer pressure	Injector delivery	Spread	Back leakage
		rpm	degrees	bar (kg/cm^2)	cm^3/200 shots	cm^3/200 shots	cm^3/100 shots
1([1])		200	–	–	–	–	–
2([2])		1000	–	–	–	–	–
3		100	–	0.3	–	–	–
4(+)		950	–	–	–	–	–
5([3]) – 6		950	2.75 to 3.00([15])	4.5 to 5.6	–	–	–
7([4])	max	1250	3.75 to 4.75([16])	–	–	–	–
8 – 9		750	–	–	10.2 to 10.4(*)	≤1	40 to 90([o])
10([5])		1250	–	–	–	–	–
11([6])		1420	–	–	1.5 to 2	–	–
12([x])		1520	–	–	≤1.4		
13([7])		1250	–	–	–	–	–
14([8])		250	0.75 to 1.75([17])	–	–	–	–
15([9])		200	0	–	≥16	–	–
16([10])		325	–	–	2 to 2.5	–	–
17([11])	min	850	–	–	–	–	–
18([12])		325	–	–	≤0.8	–	–
19([13])		325	–	–	≤0.5	–	–
20([14])		–	–	–	–	–	–

([1]) Delivery to all injectors.
([2]) Run pump for 3'.
([3]) Set pressure adjusting screw for specified advance and check that pressure is as specified.
([4]) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
([5]) Record average delivery.
([6]) Adjust max speed screw and block in position.
([7]) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
([8]) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
([9]) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
([10]) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
([11]) Adjust idle speed screw.
([12]) Shut–off lever closed.
([13]) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
([14]) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 9.75°.
([15]) From 2.2 to 2.4 mm (0.08 to 0.09 in)
([16]) From 3.0 to 3.8 mm (0.11 to 0.14 in)
([17]) From 0.6 to 1.4 mm (0.02 to 0.05 in)
([x]) If delivery is higher, bring the rod length at minimum value (see above)
(') Take reading after 15"
([o]) Flow: 300 to 600 cm^3/minute.
(+) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

MODEL 60–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8522 A 150A – 98404116 (POST–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) ..... counterclockwise

Release order ..... 1 – 2 – 3

Governor control stud to metering valve lever pin ..... 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter ..... 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: ..... ISO 4113 at 42° ± 2°C

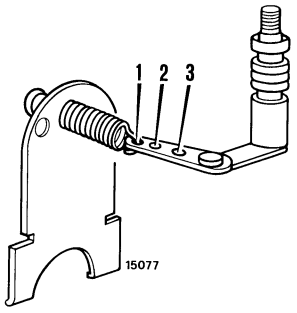
Fuel pressure: ..... 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: ..... 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 4093.2)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut



Control spring in hole 2

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 2.5 mm (0.1 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed rpm	Advance degrees	Transfer pressure bar (kg/cm^2)	Injector delivery cm^3/200 shots	Spread cm^3/200 shots	Back leakage cm^3/100 shots
1(1)		200	–	–	–	–	–
2(2)		1000	–	–	–	–	–
3		100	–	0.3	–	–	–
4(+)		750	–	–	–	–	–
5(3) – 6		750	4.25 to 4.50(15)	3.4 to 4.5	–	–	–
7(4)	max	1000	5.75 to 6.75(16)	–	–	–	–
8 – 9		750	–	–	10.9 to 11.1(*)	≤1	40 to 90(°)
10(5)		1250	–	–	–	–	–
11(6)		1420	–	–	1.5 to 2	–	–
12(x)		1520	–	–	≤1.4		
13(7)		1250	–	–	–	–	–
14(8)		250	2.75 to 3.75(17)	–	–	–	–
15(9)		200	0	–	≥16	–	–
16(10)		325	–	–	2 to 2.5	–	–
17(11)	min	850	–	–	–	–	–
18(12)		325	–	–	≤0.8	–	–
19(13)		325	–	–	≤0.5	–	–
20(14)		–	–	–	–	–	–

(1) Delivery to all injectors.
(2) Run pump for 3'.
(3) Set pressure adjusting screw for specified advance and check that pressure is as specified.
(4) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
(5) Record average delivery.
(6) Adjust max speed screw and block in position.
(7) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
(8) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
(9) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
(10) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
(11) Adjust idle speed screw.
(12) Shut–off lever closed.
(13) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
(14) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 8.75°.
(15) From 3.4 to 3.6 mm (0.13 to 0.14 in)
(16) From 4.6 to 5.4 mm (0.18 to 0.21 in)
(17) From 2.2 to 3.0 mm (0.08 to 0.11 in)
(*) If delivery is higher, bring the rod length at minimum value (see above)
(') Take reading after 15"
(°) Flow: 300 to 600 cm^3/minute.
(+) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

MODEL 70–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8520 A 790A – 98404124 (POST–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) . . . . . counterclockwise

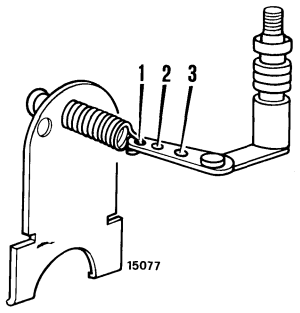
Release order . . . . . 1 – 3 – 4 – 2

Governor control stud to metering valve lever pin . . . . . 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter . . . . . 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**



Control spring in hole 2

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: . . . . . ISO 4113 at 42° ± 2°C

Fuel pressure: . . . . . 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: . . . . . 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 4093.2)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 3 mm (0.11 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed	Advance	Transfer pressure	Injector delivery	Spread	Back leakage
		rpm	degrees	bar (kg/cm^2)	cm^3/200 shots	cm^3/200 shots	cm^3/100 shots
1([1])		200	–	–	–	–	–
2([2])		1000	–	–	–	–	–
3		100	–	0.3	–	–	–
4(+)		900	–	–	–	–	–
5([3]) – 6		900	4.5([15])	4.1 to 5.4	–	–	–
7([4])	max	1250	6.75 to 7.75([16])	–	–	–	–
8 – 9		750	–	–	9.1 to 9.3(*)	≤1	40 to 80(°)
10([5])		1250	–	–	–	–	–
11([6])		1420	–	–	1.5 to 2	–	–
12(x)		1520	–	–	≤1.4		
13([7])		1250	–	–	–	–	–
14([8])		250	1.75 to 2.75([17])	–	–	–	–
15([9])		200	0	–	≥16	–	–
16([10])		325	–	–	2 to 2.5	–	–
17([11])	min	850	–	–	–	–	–
18([12])		325	–	–	≤0.8	–	–
19([13])		325	–	–	≤0.5	–	–
20([14])		–	–	–	–	–	–

([1]) Delivery to all injectors.
([2]) Run pump for 3'.
([3]) Set pressure adjusting screw for specified advance and check that pressure is as specified.
([4]) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
([5]) Record average delivery.
([6]) Adjust max speed screw and block in position.
([7]) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
([8]) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
([9]) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
([10]) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
([11]) Adjust idle speed screw.
([12]) Shut–off lever closed.
([13]) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
([14]) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 8.75°.
([15]) From 3.6 mm (0.14 in)
([16]) From 5.4 to 6.2 mm (0.21 to 0.24 in)
([17]) From 1.4 to 2.2 mm (0.05 to 0.08 in)
(*) If delivery is higher, bring the rod length at minimum value (see above)
(°) Take reading after 15"
(°)Flow: 300 to 600 cm^3/minute.
(+) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

MODEL 80–75 – CALIBRATION DATA – CAV INJECTION PUMP TYPE DPS 8520 A 780A –98404123 (POST–MODIFICATION)

ASSEMBLY DATA

Pump rotation (drive side) . . . . . counterclockwise

Release order . . . . . 1 – 3 – 4 – 2

Governor control stud to metering valve lever pin . . . . . 40.45 to 41.05 mm (1.59 to1.61 in)

Pump timing: 0° ± 1° BTDC, cylinder no. 1 compression stroke

Flange guide diameter . . . . . 50 mm (1.96 in)

Delivery connection of cylinder no. 1: marked with letter **U**

TEST CONDITIONS

Test bench complying with ISO 4008/1.../2

Injectors complying with ISO 7440 A11: (1688901000)

Test fluid: . . . . . ISO 4113 at 42° ± 2°C

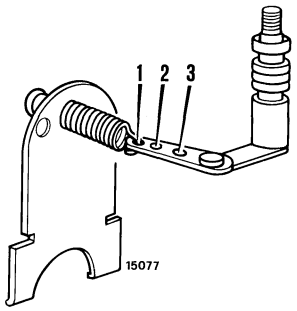
Fuel pressure: . . . . . 0.1 bar (kg/cm^2) or 14 psi

Graduate drain time: . . . . . 30'

Release pressure: 172 to 175 bar (175 to 178 kg/cm^2 or 2483 to 2492 psi)

Lines: 6x2x845 mm – 0.2x0.07x33 in (ISO 4093.2)

Adjust maximum speed screw to protrude 9 mm (0.5 in) from surface of associated nut



Control spring in hole 2

Fully slacken fuel pressure adjusting screw, then tighten through 3 $^1/_2$ turns

Position valve adjusting screw so that it is just beneath the surface of the associated nut

Fully slacken maximum speed, idle speed and anti–stall screw

A 3 mm (0.11 in) shim is installed on the advance device spring side plug; no other shims are required

Test no.	Lever position	Speed rpm	Advance degrees	Transfer pressure bar (kg/cm^2)	Injector delivery cm^3/200 shots	Spread cm^3/200 shots	Back leakage cm^3/100 shots
1([1])		200	–	–	–	–	–
2([2])		1000	–	–	–	–	–
3		100	–	0.3	–	–	–
4(+)		900	–	–	–	–	–
5([3]) – 6		900	4.5([15])	4.1 to 5.4	–	–	–
7([4])	max	1250	5.75 to 6.75([16])	–	–	–	–
8 – 9		750	–	–	10.1 to 10.3(*)	≤1	40 to 80([o])
10([5])		1250	–	–	–	–	–
11([6])		1420	–	–	1.5 to 2	–	–
12(x)		1520	–	–	≤1.4		
13([7])		1250	–	–	–	–	–
14([8])		250	1.75 to 2.75([17])	–	–	–	–
15([9])		200	0	–	≥16	–	–
16([10])		325	–	–	2 to 2.5	–	–
17([11])	min	850	–	–	–	–	–
18([12])		325	–	–	≤0.8	–	–
19([13])		325	–	–	≤0.5	–	–
20([14])		–	–	–	–	–	–

([1]) Delivery to all injectors.
([2]) Run pump for 3'.
([3]) Set pressure adjusting screw for specified advance and check that pressure is as specified.
([4]) Stop test bench, disconnect transfer pressure gauge and install shut–off device. Activate shut–off device and start test bench.
([5]) Record average delivery.
([6]) Adjust max speed screw and block in position.
([7]) Delivery shall not be less than in test no 10 by more that 0.4 cm^3/200 shots.
([8]) Prior to test, bring bench speed to 100 revolutions and stop the bench. Fully tighten valve adjusting screw, start bench and slacken screw until reaching specified values.
([9]) Prior to test, bring bench speed to 100 revolutions, stop and restart bench.
([10]) Adjust anti–stall screw for a delivery of 2 to 3 cm^3/200 shots Block screw in position.
([11]) Adjust idle speed screw.
([12]) Shut–off lever closed.
([13]) With shut–off device deactivated and shut–off lever open, wait 5" before performing the test.
([14]) Connect delivery fitting "U" to injector tester and maintain 54 bar (757 psi) pressure Using timing tool, bring about hydraulic lockup, then position pump timing plate at + 7.5°.
([15]) From 3.6 mm (0.14 in)
([16]) From 4.6 to 5.4 mm (0.18 to 0.21 in)
([17]) From 1.4 to 2.2 mm (0.05 to 0.08 in)
(*) If delivery is higher, bring the rod length at minimum value (see above)
(') Take reading after 15"
([o]) Flow: 300 to 600 cm^3/minute.
(+) Pump body pressure as measured with gauge connected at vent screw hole shall be 0.1 to 0.3 bar (kg/cm^2) or 14 to 42 psi.

ON–BENCH PERFORMANCE DATA

Remarks: For engines with BOSCH pump see the values at pages 2 and 3, section 11 of Workshop Manual for model 55–65, 60– 65, 70–65 and 80–65.

Test plan

Engine without fan, air cleaner and exhaust silencer.

Barometric pressure 750 ± 5 mm Hg at 239 meters (785 ft) above sea level.

Ambient temperature: 20 ± 3 °C.

R.H.: 70% ± 5.

Fuel density: 830 ± 10 g/l.

Pump timing, B.T.D.C., cylinder no. 1 on compression stroke:

- Mod. 55–75, C.A.V. pump . . . 0° to 1°
- Mod. 60–75, C.A.V. pump . . . 0° to 1°
- Mod. 70–75, C.A.V. pump . . . 0° to 1°
- Mod. 80–75, C.A.V. pump . . . 0° to 1°

MOD. 55–75 C.A.V. INJECTION PUMP

Throttle	rpm	kW		Fuel consumption kg/h
		2–hour run–in	50–hour run–in	
Maximum, full load	2500	≥ 36.7 (50 HP)	38.2 to 40.1 (52 to 54.5 HP)	8.8 to 9.2
Maximum, full torque	1500	≥ 25.6 (34.8 HP)	26.7 to 28.3 (36.3 to 38.5 HP)	5.8 to 6.2
Maximum, no–load	2750 to 2790	–	–	–
Minimum, no–load	625 to 675	–	–	–

MOD. 60–75 C.A.V. INJECTION PUMP

Throttle	rpm	kW		Fuel consumption kg/h
		2–hour run–in	50–hour run–in	
Maximum, full load	2500	≥ 40.4 (55 HP)	41.9 to 44.1 (57 to 60 HP)	9.6 to 10.1
Maximum, full torque	1500	≥ 28.3 (38.5 HP)	29.4 to 31.6 (40 to 42.5 HP)	6.4 to 6.8
Maximum, no–load	2750 to 2790	–	–	–
Minimum, no–load	625 to 675	–	–	–

MOD. 70–75 C.A.V. INJECTION PUMP

Throttle	rpm	kW		Fuel consumption kg/h
		2–hour run–in	50–hour run–in	
Maximum, full load	2500	≥ 49.6 (67.5 HP) (*)	51.3 to 53.7 (70 to 73 HP)	11.7 to 12.2
Maximum, full torque	1500	≥ 34.6 (47 HP) (*)	35.7 to 37.9 (48.5 to 51.5 HP)	7.7 to 8.2
Maximum, no–load	2750 to 2790	–	–	–
Minimum, no–load	625 to 675	–	–	–

(*) Foreseen values.

MOD. 80–75 C.A.V. INJECTION PUMP

Throttle	rpm	kW		Fuel consumption kg/h
		2–hour run–in	50–hour run–in	
Maximum, full load	2500	≥ 54.8 (74.5 HP) (*)	56.6 to 58.8 (77 to 80 HP)	13.1 to 13.6
Maximum, full torque	1500	≥ 37.5 (51.5 HP) (*)	40 to 42.2 (54.4 to 57.4 HP)	8.7 to 9.2
Maximum, no–load	2750 to 2790	–	–	–
Minimum, no–load	625 to 675	–	–	–

(*) Foreseen values.

MASTER CLUTCH

Type	twin, dry clutch unit (one 11" 1/2 plate model 55–75 and 60–75) (or two 11" 1/2 plate model 70–75 and 80–75) for master clutch, 11" PTO clutch.
Control	Mechanical, by hand lever.
Clutch apply/release mechanism	Overcenter type with dish spring for master clutch and dish spring type for PTO clutch.
Plate facing material:	
– master clutch	steel with organic material compound.
– PTO clutch	steel with organic material compound.
Plate thickness:	
– master clutch (each plate) with a load of 8000 N – 816 kg (1798 lb)	7.7 to 8.3 mm (0.30 to 0.32 in)
– PTO clutch with a load of 7500 N – 765 kg (1686 lb)	7.7 to 8.1 mm (0.30 to 0.31 in)
– wear limit:	
– master clutch	see page 7, section 22
– PTO clutch	see page 7, section 22
Master clutch intermediate plate thickness	14 mm (0.55 in)
Master clutch release lever control sleeve–to–seat clearance	0.050 to 0.151 mm (0.001 to 0.005 in)
PTO clutch release lever control sleeve to–seat clearance	0.082 to 0.182 mm (0.003 to 0.007 in)
Pressure plate return spring data:	
– nominal free height	60 mm (2.36 in)
– height under a load of 87 to 97 N (8.9 to 9.9 kg)	35 mm (1.07 in)
Release lever planarity adjustment	see page 7 and 8, section 22.
Clutch control adjustment	see page 8 and 9, section 22.
Transmission engagement synchronizer brake:	
– type	face acting by friction lining disc
– control	activated by collar–sleeve during clutch release stage
– brake lining thickness	4.5 mm (0.177 in)
– wear limit (minimum)	2.2 mm (0.086 in)

TRANSMISSION AND SPLITTER

Transmission type	4–speed constant mesh sliding gears.
Gears:	straight spur.
Splitter:	2 forward ranges and 1 reverse range, for a total of 8 forward and 4 reverse speeds.
– gear type:	straight spur.
– Reduction ratios:	
– low	(28:34) (18:44) = 1 to 2.968
– high	1
– reverse	(34:19) (19:44) = 1 to 1.294
Transmissions and splitter controls	independent, located centrally in front of operator, by two hand levers
Transmission shaft front bearing/thrust washer thickness (S_3, page 2, section 23).	3.00 – 3.25 – 3.50 – 3.75 – 4.00 mm (0.11 – 0.12 – 0.13 – 0.14 – 0.15 in)
Low range driving gear/thrust washer thickness (5, page 2, section 23)	1 mm (0.03 in)
Low range idle gear/thrust washer thickness (4, page 2, section 23)	7.4 to 7.5 mm (0.291 to 0.295 in)
Gearshift striker rod detent ball spring data:	
– spring free length	28.5 mm (1.1220 in)
– length under a load of 102 to 114 N (10.4 to 11.6 kg or 19.6 to 21.8 lb.)	22.5 mm (0.8858 in)

CREEPER

Type	spur gear between master clutch and transmission. Provides 16 forward and 8 reverse speeds.
Reduction ratio	(23:50) (26:47) = 1 to 3.9
Control	Lever on operator's right.

REVERSER

Type	Mechanical, spur gear, between master clutch and transmission.1 driven gear, 1 intermediate gear and 1 idle transfer gear.
Control	Lever on operator's right.

BEVEL DRIVE

Bevel ratio	9/47 = 1:5.222
Bevel drive backlash	0.15 to 0.20 mm(0.00590 to 0.00787 in)
Nominal distance between ring gear centerline and backof pinion	143 mm (5.62 in)
Bevel pinion rear bearing thrust washer thickness	8.45 to 8.50 mm (0.332 to 0.334 in)
Bevel pinion position adjustment	See pages 1 and 2, section 25.
Bevel pinion position shim thickness range (S_1, page 2,section 23)	1.85–1.90–1.95–2.00–2.05–2.10–2.15–2.20–2.25–2.30–2.35–2.40–2.45–2.50–2.55–2.60–2.65–2.70 mm (.073–.075–.077–.079–.081–.083–.085–.087–.089–.091–.093–.095–.097–.099–.101–.103–.105–.107 in)
Bevel pinion bearing adjustment	See pages 2 and 3, section 25.
Bevel pinion bearing shim thickness range (S_2)	2.50–2.55–2.60–2.65–2.70–2.75–2.80–2.85–2.90–2.95–3.00–3.05–3.10–3.15–3.20–3.25–3.30–3.35–3.40–3.45–3.50–3.55–3.60–3.65–3.70–3.75–3.80–3.85–3.90–3.95–4.00–4.05–4.10 mm (.098–.100–.102–.104–.106–.108–.110–.112–.114–.116–.118–.120–.122–.124–.126–.128–.130–.132–.134–.136–.138–.140–.142–.144–.146–.148–.150–.152–.154–.156–.158–.160–.162 in)
Ring gear bearing and bevel drive backlash adjustment	See page 4, 5 and 6, section 25.
Bearing and bevel drive backlash shim thickness (S_3 and S_4, page 4, section 25)	0.15 – 0.20 – 0.50 mm (0.006 – 0.008 – 0.020 in).

STEERING CLUTCHES

Type	Dry, multiple plate.
Control	Hand lever model 55–75 (all versions) and 60–75 Vineyard, or by hydraulic cowl formed by: single control lever on cluster center, hydraulic pump, valve unit and two pistons (one each clutch) for release control – model 60–75 (excluded 60–75 Vineyard), 70–75 and 80–75.
Driven plate thickness (each clutch):	
– model 55–75 (all versions) and 60–75 Vineyard	8
– model 60–75 (excluded model 60–75 Vineyard), 70–75 and 80–75	10
Driving plate thickness (each clutch):	
– model 55–75 (all versions) and 60–75 Vineyard	8
– model 60–75 (excluded model 60–75 Vineyard), 70–75 and 80–75	10

(continued)

STEERING CLUTCHES

(continued)

Plate material: – driven – driving	 Armored asbestos fabric. Steel.
Driving plate thickness (each, steel)	1.84 to 2.16 mm (0.0724 to 0.0850 in)
Driven plate thickness (each)	4.7 to 4.9 mm (0.1886 to 0.1929 in)
Minimum wear thickness.	4 mm (0.1575 in)
Total clutch pack thickness: – model 55–75 (all versions) and 60–75 Vineyard – model 60–75 (excluded 60–75 Vineyard), 70–75 and 80–75	 52.32 to 56.48 mm (2.059 to 2.223 in) 65.4 to 70.6 mm (2.575 to 2.780 in)
Thrust spacer (8, page 1, section 26) for clutch drum (model 60–75, excluded 60–75 Vineyard, 70–75 and 80–75)	21.3–23.0–24.7 mm (.838–.905–.972 in)
Driving/driven plate teeth tip clearance relative to inner/outer drum, respectively	0.15 to 0.40 mm (0.005 to 0.1575 in)
Number of control springs	eight per clutch
Control spring specification (4, page 1, section 26): – nominal free length – length under a load of 717 to 791 N (73.1 to 80.7 kg or 161 to 177 lb)	 79.5 mm (3.13 in) 47.0 mm (1.85 in)
Steering clutch control hand lever free travel, at the center (model 55–75 all versions and 60–75 Vineyard)	60 mm (2.36 in)
Steering clutch adjustment: – model 55–75 (all versions) and 60–75 Vineyard – model 60–75 (excluded 60–75 Vineyard), 70–75 and 80–75	 see page 3, section 26 of Workshop Manual model 55–65, 60–65, 70–65 and 80–65. see page 7, section 26.
Hydraulic pump Type Designation code Make Drive	 gear pump 18X FIAT timing gear
Rotation (seen from drive end) Engine–to–pump drive ratio	clockwise. 1:0.931
Max. rated speed (engine at maximum output rpm)	2328 rpm
Nominal output at max. output rpm Max. output on test bench, at 1450 rpm and 100 bar (102 kg/cm^2 or 1450 psi): – new or reconditioned pump – used pump – test oil temperature – test oil viscosity	19 dm^3/min (l/min) (4.2 imp.gal./min) 11.5 dm^3/min (l/min) (2.53 imp. gal/min) 7.5 dm^3/min (l/min) (1.65 imp.gal/min) 55 to 65°C (131 to 149°F) SAE 20
Pump gear journal diameter	17.400 to 17.418 mm (.6850 to .6857 in)
Journal housing bore diameter in bearing	17.450 to 17.470 mm (.6870 to .6878 in)
Journal clearance in bearing	0.032 to 0.070 mm (.0012 to .0028 in)
Max. wear clearance	0.1 mm (0.0040 in)

(continued)