

Terçuson

SERVICE MANUAL

SPECIFICATION AND DATA TRACTORS TYPE TE-A20 and TE-D20

This specification initially gives data of the basic normal-width tractor, less engine; specifications of engines then follow.

Details applicable to tractors which deviate from this standard, e.g. narrow-width models, are given in Section T, under the title of 'Special Type Tractors.'

TRACTOR, LESS ENGINE

Overall Dimensions.

 Wheel Base 70" (1778 mm.)
 Track : Front adjustable in 4" steps (102 mm) from 4ft. to 6ft. 8 ins. (1219 to 2032 mm.)

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 Turning circle : with brakes 16 ft. (4876 mm) without brakes 20 ft. (6095 mm).

Ground clearance 13" (330 mm.) Overall length 9 ft. 7 ins. (2921 mm.) Overall width 5 ft. 4 ins. (1625 mm.) Overall height 4 ft. 8 ins. (1320 mm.) Weight (dry) 2500 lb. (1134 kg). Tyres front 4.00 × 19. Tyres rear 10.00 × 28.

Fill-Up Data.

Engine Sump 12 pints (6.8 litres) Air Cleaner 3 pint (.45 litres) Cooling System 20 pints (11.3 litres) Transmission casing 5 gallons (22.8 litres) Belt Pulley ½ pint (.28 litres) Fuel tank-TE-A20 : 8 gallons (36 litres) -TE-D20 : 7 gallons (31.5 litres) and I gallon (4.5 litres) Steering Box 5 pints. (2.9 litres) Front Hubs (each) & pint (.30 litres) Tyre pressures : Front 26 lb. per sq. inch Rear 12 lb. per sq. inch

Component Details Hydraulic Pump.	Dimensions New		Clearance New		Permissible Worn Clearance or Dimension		Remarks	
	Ins.	mms.	Ins.	mms.	Ins.	mms.		
Housing Bore for Control Valve Bush	.999 1.000	25.375 25.400	001 0025	025 064				
Control Valve Bush Ext. Dia.	1.001 1.0015	25.425 25.438						
Control Valve Bush Int. Dia.	.5925 .5030	15.959 15.062	.0005	.013 .031				
Control Valve Dia.	.5918 .5920	15.032 15.037	.0012	.031				

Torque Loadings—Valve Chamber Clamp Bolts 70 lbs. ft. (9.675 kg.m). Pump Assembly Securing Bolts 45 lbs. ft. (6.25 kg.m).

Hydraulic Lift Assy.

Fork retraction spring—Free length inside hooks 4.88" (123.952 mm). Length under 12 lbs. (5.443 kg) load 6.94" (176.276 mm).

Hydraulic Cylinder Bore	2.4995 2.5010	63.487 63.525				
			.0015 .00 4 0	.038 .102	.006	.152
Hydraulic Cylinder Piston Dia.	2.497 2.498	63.424 63.449				
Piston Ring Groove Width	.1255 .1265	3.188 3.213				
		•	.0015	.038 .089	.005	.126
Piston Ring Width	.124 .123	3.150 3.124	.0033			
Piston Ring Gap (Closed)	.007 .013	.178 .330			.018	.457
Linkage Check Chain Length.	8.015 7.980	203.581 202.692				

Length of check chain taken between inside faces of end links.

Component Details		ensions New		rance ew	Permissib Clearance or		Remarks	
	Ins.	mms.	Ins.	mms.	Ins.	mms.		
Check Chain Shackle Length	1.189 1.205	30.201 30.607					This dimension tak pin hole centre to face.	
Check Chain Assy. Total Length	10.358 10.425	263.093 264.795			10.7	271.76	This length betwee hole centres.	en pi
ransmission.								
Shifter Mechanism.								
Shifter Rail Dia.	.7465 .7475	18.961 18.987	.0015	.038	.006	.152	4	
Shifter Rail Bore in Casing	.749 .750	19.025 19.050	.0035	.089			*	
Details. sh	nims up to	a maximum of	′ 5/16″ (7.938 m	m) giving ma	rements of 3 lb ax. load of 27 lbs d length 1.32" (s. (12.247 kg)	by fitting 1/16" (1.5). Free length 1.571"	88 mm) (39.9 03
Thickness of Shifter Forks at Pressure Faces.	.372 .368	9.449 9.347	.008	.203	.025	.634		
Width of Groove in Coupling Connector	.380 rs .384	9.652 9.754	.016	.406				
Mainshaft.								
First Gear Bushing Bore.	2.0620 2.0635	52.375 52.413	.0015	.038	.007	.177		
Mainshaft Dia. at Position of 1st Gear	2.0605 - 2.0583	52.337 52.281	.0052	.132		,		
2nd Gear Bushing Bore.	2.0620 2.0635	52.375 52.413	.0015	.038	.007	.177		
External Dia. of Bearing Connector	2.0605 2.0683	52.337 52.281	.0052	.132				
Countershaft.								
3rd. Gear Bushing Bore.	2.0620 2.0635	52.375 52.413	.0015	.038	.008	.203		
Ext. Dia. of Counter- shaft 3rd. Gear Bust	2.0605 h 2.0583	52.337 52.281	.0052	.132				
4th. Gear Bushing Bore	2.0635 2.0620	52.413 52.375	.0052 .0015	.132	.007	.177		
Ext Dia. of Connector Bearing.	2.0605 2.0583	52.377 52.281	.0015	.038				
Reverse Gear Bushing Bore	1.1250 1.1256	28.575 28.590	.002	.051	.008	.203	ų.	
Reverse Shaft Dia.	1.123 1.122	28.52 4 28.499	.003	.076				
End Float—Main & Countershaft.			See f	Remarks			Fit shims behind ma bearing retainer and Shaft bearing suppo	P.T.O.

bearing retainer and P.T.O. Shaft bearing support to give preload of 7 to 12 lbs. ins. (.081-.138 kg.m). on main and countershafts.

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	ponent etails	Dimer Ne	isions w	Cleara Nev		Permissibl Clearance or		Remarks
		lns.	mms.	Ins.	mms.	Ins:	mms.	
	sh(A)—Sliding Teeth on Gear .203 mm .254 mm			(B) —Sliding co mating teeth or .0005" .0015"		n(r teeth 004″.102	mm. mm.
wer Tak	e-off Shaft.							
Rear spl	ines 6 \times 1.92"	(48.77 mm) lo		l″ (28.47 mm) dia				
	8.33 mm) dia. h ver Int. Dia. 24		e cf ½″ (I2.2	3″ (28.52 mm) 7 mm) from shaft		3.67 mm)	.277″ (7.0	4 mm)
utch.								
Release	Shaft Dia.	.997 .996	25.324 25.298	.004	.102	.010	.254	
Bush Bo	ire.	1.001 1.0025	25.425 25.464	.0065	.165			
Clutch S	Springs. 9	9 green spring	s each of 10	5 lb. (47.627 kg) t	o 115 lb. (52	2.199 kg).		Orange springs superse green springs after Trac
	9	orange_sprin	gs each of 90	0 lb. (40.823 kg) t	o 100 lb. (45	5.358 kg).		Serial No. 32872.
pedal an in releas		footrest brac	ket. Moven). This dimensic nent of release le 81 mm).				
pedal an in releas ar Axle.	d underside of e lever height s	footrest brac hould not exc	ket. Moven eed .015" (.3	nent of release le 181 mm). 2 mm). Half sha	ver ends 🛓	(13 mm). Var	iation	
pedal an in releas ar Axle.	d underside of e lever height s — Crown wh	footrest brac hould not exc eel and pinior	ket. Moven eed.015" (.3 1.004" (.102 .025" (.634	nent of release le 181 mm). 2 mm). Half sha 4 mm). d thrust pads .01	ver ends $\frac{1}{2}^{''}$ it end float .	(13 mm). Var .008″ (.203 mm .020″ (.508 mm n).	iation	
pedal an in releas ar Axle.	d underside of e lever height s — Crown wh Clearance l	footrest brac hould not exc eel and pinior	ket. Moven eed.015" (.3 1.004" (.102 .025" (.634	nent of release le 181 mm). 2 mm). Half sha 4 mm). d thrust pads .01	ver ends $\frac{1}{2}''$ ft end float . 3'' (.033 mr	(13 mm). Var .008″ (.203 mm .020″ (.508 mm n).	iation	
pedal an in releas ar Axle. Backlash ont Axle. Centre	d underside of e lever height s — Crown wh Clearance l Trunnion hing Int. Dia.	footrest brac hould not exc eel and pinior	ket. Moven eed.015" (.3 1.004" (.102 .025" (.634	nent of release le 181 mm). 2 mm). Half sha 4 mm). d thrust pads .01 .02 .008	ver ends ½" ft end float . 3" (.033 mr 0" (.508 mn .203	(13 mm). Var .008″ (.203 mm .020″ (.508 mm n).	iation	
pedal an in releas ear Axle. Backlash ont Axle. Centre ⁻ Bus	d underside of e lever height s — Crown wh Clearance i Trunnion hing Int. Dia. ed.	footrest brac hould not exc eel and pinior between crow	ket: Moven eed .015" (.3 .025" (.634 n wheel an 44.602	nent of release le 181 mm). 2 mm). Half sha 4 mm). d thrust pads .01 .02	ver ends ½" It end float . 3" (.033 mr 0" (.508 mn	(13 mm). Var .008" (.203 mm .020" (.508 mm n). n).	(1). 1). 1).	
pedal an in releas ear Axle. Backlash ont Axle. Centre I Bus Fitt Centre I Bore of	d underside of e lever height s — Crown wh Clearance i Trunnion hing Int. Dia. ed.	footrest brac hould not exc eel and pinior between crow 1.756 1.764 1.747 1.748 1.3735	ket: Moven eed .015" (.3 0.025" (.634 no wheel an 44.602 44.806 44.347	nent of release le 181 mm). 2 mm). Half sha 4 mm). d thrust pads .01 .02 .008	ver ends ½" ft end float . 3" (.033 mr 0" (.508 mn .203	(13 mm). Var .008" (.203 mm .020" (.508 mm n). n).	(1). 1). 1).	

Steering.

Backlash-Screw adjustment against rear faces of segments to give minimum backlash without binding.

.003

.005

31.725 31.750

31.648 31.623

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1.249 1.250

1.246 1.245

Distances between ball centres and vertical plane through drop arm crankshaft centre 2.17" (55.12 mm) with steering wheel in straight ahead position.

.076 .127

.010

.254

Pulley Attachment.

Int. Dia. Spindle Bushes

Spindle Dia.

Pulley width 6¹/₂" (165 mm) Dia. 9" (229 mm). Gear Ratio to P.T.O. Shaft 1.86 to 1. Backlash between driving gears .004" (.102 mm) .020" (.508 mm)

PETROL ENGINE, PART No. 57963

(Manufactured by the Standard Motor Co.)

ENGINE-80 mm bore, fitted to tractors Type TE-A20, TE-C20.

Stroke 92 mm. Piston Displacement 112.9 cu. ins. (1850 c.c.)

Compression ratio 5.77 to 1.

Maximum belt horse power-23.9.

Tightening Torque—Cylinder Head Nuts 60 to 65 lbs. ft. Main (8.25—8.95 kg. metres). (Big End Nuts 42 to 46 lbs. ft. Flywl (5.8—6.4 kg. metres). (

Main Bearing Nuts 90 to 100 lbs. ft. (12.4—13.8 kg. metres). Flywheel Cap Screws 42 to 46 lbs. ft. (5.8—6.4 kg. metres).

Component Details		ensions Iew	Clear: Ne		Permissibl Clearance or		Remarks
	Ins.	mms.	Ins.	mms.	Ins.	mms.	
Crankshaft. Journal Diameter	2.4795 2.4790	62.979 62.967	.0025	.064	.006	.152	Similar tolerances for re- ground crankshaft to .020",
Bearing Diameter (Fitted)	2.4815 2.4805	63.030 63.015	.0010	.025	dry		.030", .040" (.508, .762, 1.016 mm) undersize.
Crankshaft End Float.							
Centre Journal Length.	1.7507 1.7 4 98	44.468 44.445	.0117	.297	.010	.254	Crankshaft end float con- trolled by thickness of
			.0048	.122	dry	.231	thrust washers.
Centre Bearing Cap width + 2 thrust washers.	1.7450 1.7390	44.323 44.171					
Big End.	2 00/1	F0 007					
Crankpin Diameter	2.0861 2.0866	52.987 53.000					Similar tolerances for re-
			.0024	.061	.006	.152	ground crankshaft to .020".
Bearing Diameter	2.0985	53.302	.0006	.015			.030", .040" (.408, .762, 1.016 mm) undersize.
Ū	2.0872	52.015					,
Connecting Rod End Float	t.				Q 1		
Crankpin Length	1.1890 1.1870	30.201 30.150					
	1.10/0	30.130	.0115	.292			
Con-Rod Width	1.1795	29.959	.0075	.191			
	1.1775	29.909					
Ovality—Journals &							Minimum diameter to be
Crankpins.					0.002	.051	such that the permissible worn clearance for bearings
Taper—Journals & Crankpins.					0.002	.051	is not exceeded.
Small End. Bore for Bush	1.0000	25. 4					
	.9995	25.387	0035				
			0035 0050	+.09 —.13			Heat piston in boiling water for removal and
Bush, Ext. Dia.	1.0045 1.0035	25.514 25.489					fitting of gudgeon pin.
						3 4	
Bush, Int. Dia.	.8752 .8738	22.230 22.220				*	
			00035	+.009			These clearance figures
Gudgeon Pin, Dia.	.87510	22.228	00030	008			taken at 68°F.
· · · · · · · · · · · · · · · · · · ·	.87485	22.221	00045				
			+ .00045 00005	+ .011 —.001			
Gudgeon Pin Holes	.8853	22.233 22.226					
in Piston	.87505	11.110					

B5.

Component Details		ensions New		arance New		ible Worn or Dimension	Remarks
Pistons & Sleeves.	Ins.	mms.	Ins.	mms.	Ins.	mms.	
Piston Dia.—(Thrust	3.1461	79.908					Sleaver and size
Side Top Skirt)	3.1472	79.939	.0028	071			Sleeves and pistons grade F.G.H. in steps of .0004
.			.0028	.071 .086			(.010 mm).
Sleeve Bore (Parallel)	3.1492 3.1503	79.99 80.018					
			.0013 .0019	.033			
Piston Dia. (Thrust	3.1476	79.949	.0019	.048			
Side Bottom Skirt)	3.1487	79.977					
Top Land Diameter	3.133	79.578	.0162	.412			Piston fitted with three
	3.131	79.527	.0193	.490			rings above gudgeon pin one ring below.
Ring Groove Width Top and 2nd.	.0957 .0947	2.431 2.405					On engines SIOIE to
		2.105	.0030	.076	.005	.127	S56962E a plain bottom scraper ring fitted below
Compression Ring	.0937	2.380	.0010	.025			gudgeon pin.
Width Top & 2nd.	.0927	2.355					
Ring Groove Width	.1895	4.813					Similar tolerances for over-
(3rd.)	.1885	4.788	.0030	.076	.005	.127	size pistons $+.020^{\prime\prime}$ (.508 mm).
Scraper Ring Width	.1875	4.763	.0010	.025			Oversize rings + .010"
(3rd.)	.1865	4.737					(.245 mm) + .020" (.508 mm) + .030" (.762 mm).
Ring Groove Width	.1580 `	4.013					Replacement sleeves avail- able as standard size, and
(4th.)	.1570	3.987	.0030	.076	.005		rebored + .020" (.508 mm).
C D: \\/// \	15/0	2.040	.0010	.025	.005	.127	
Scraper Ring Width (4th.)	.1560 .1550	3.962 3.937					
Ring Gap (Closed)			.010	25			
King Gap (Closed)			.006	.25 .15			
Clearance Between :					•		
Sleeve & Upper Block			.045	1.143			
Sieeve & Opper block			.015	.381			Dimensions taken respec- tively at top flange and
Sleeve & Lower Block			.003	.076			spigot of sleeve.
			.0005	.013			
Stand-out of Sleeve			.003	.076			Desired clearance when
			.0055	.140			assembled.
ater Pump & Thermost	at.						
Housing Bore for	1.1813	30.005					
Bearing	1.1807	29.990	+.0007	-+ .018			
Booring Case	1.1811	30.000	0004	010			
Bearing Case, Ext. Dia.	1.1806	30.000 29.987					
il Pump.							
Approximate capacity at	50 lbs. per	square inch	(3.52 kg/sq. cm	i.) is 3.95 gallo	ons (16.94 litre	s) per minute	at 2,000 r.p.m. (Engine)
Outer Rotor, outside	1.598	40.589					
dia.	1.599	40.615	.001	.025			
Housing insert die	1 401	10 675	.003	.075			
Housing, internal dia.	1.601 1.600	40.665 40.640					
Rotor depth—outer	0.9995	25.387				·	
and inner:	0.9985	25.362					
			.0005 .0015	.013 .038			A combined worn clearance of .004" (.101mm) indicates
Housing depth	1.001 1.000	25.403 25.400				n	leed of cover and housing
	1.000	~J. TUU				f:	ace lapping.

Component Details		nensions New	Clear Ne			ole Worn r Dimension	Remarks
Inner rotor, major dia.	lns. 1.171 1.172	mms. 29.743 29.769	Ins.	mms.	Ins.	mms.	
Inner rotor, minor dia.	.729 .731	18.517 18.567					
Clearance on rotors			.004 .0005	.102 .013			Where clearance exceed .010" (.253 mm) new par should be fitted.
Camshaft.							
Front Journal Dia.	2.0590 2.0595	52.299 52.311	.0045	.114	.0065	.164	Max. wear on camsha
Bore in Block	2.0635 2.0620	52.413 52.375	.0025	.051			journals .003" (.076 mm and .0035 (.088 mm) i cylinder block.
2nd Journal Dia. 3rd. ,, ,, } Rear ,, ,, }	1.71575 1.71525	43.580 43.567	.0045	.114	.0065	.164	
Bore in Block	1.71975 1.71825	4 3.683 43.645	.0025	.051			
Locating Groove	.1885 .1865	4.788 4.737	.0065	.165			This clearance determine
Locating Plate	.1835 .1820	4.661 4.623	.003	.076			camshaft end float.
Tappets & Valves. Tappet Bore in Block	.9380 .9373	23.825 23.807	0013	022			
Tappet Dia.	.9371 .9367	23.802 23.792	.0013 .0002	.033 .005			
Valve Tip Clearance Inlet Exhaust			.010 .012	.254 .305			
Valve Guide Bore Dia.	.313 .312	7.950 7.925					
Inlet Valve Stem Dia.	.311 .310	7.899 7.874	.001 .003	.025 .076			
Exhaust Valve Stem Dia.	.309 .308	7.849 7.823	.003 .005	.076 .127			
Guide projection above spring seat.	9/16″	14.3					
Valve seating angle on va	lve head 4	5°. Valve sea	t angle in cylin	der head 44	1 2°.		
Valve Springs. Free length 1.716" (43.586 Fitted length 1.25 (31.75					07 kg).		
Flywheel.							

Starter Gear Ring)	13.406	340.512			
0,			031 023	787 584	
Starter Gear Ring Inside Dia.	13.380 13.375	339.852 339.725			

Run-out of clutch contact face at outer dia. should not exceed .003" (.076 mm),

Clearance between starter pinion and ring gear, Engine Serial No.SIE—S67028E, .156" (3.962 mm). Engine Serial No. S67029E onwards .114" (2.896 mm). Face-up starter mounting flange or fit shims to suit. Flywheels balanced individually. Held to crankshaft by 4 set screws locked in pairs. Single dowel. Locating holes in flywheel 90° apart, in crankshaft 180° apart.

Component Details		Dimensions New		Clearance New	Clearance New		ole Worn r Dimensior	Remarks	
<u></u>		lns.	mms.	ins.	mms.	Ins.	mms.		
Carburettor. Zenith Type 24 T- Choke Tube	—2. 17		Type 24T— oke Tube	2 (Min./Max. Adj. Jet) 17	Disch	H arge Nozzle.	lolley. .10	4″ (2.642 mm) with 4 holes 0″ (1.016 mm) dia.	
Main Jet Adj, Needle S.R. Jet Progression Needle Seating Air Jet	120 12 50 120 1.5 mm 2.0	Adj S.R Pro Ne	n Jet . Needle . Jet ogression edle Seating rol level at Head		Main High Uppe Idle D	Needle Seat Jet Speed Bleed r Idle Restrictio Discharge Hole od Idle Discharg	.08 .08 .03 .02 on .04 .05	6" (1.0157 mm) dia. 3" (2.108 mm) dia. 5" (.889 mm) dia. 93" (.744 mm) dia. 6" (1.168 mm) dia. 6" (1.168 mm) dia.	
S.R. Bottom Feed	1.5	Air	er-con · Jet rol Inlet Bos	Imm drilled 2.0 s Stamped M-M	fue		41 kgm) 9/1 r 1 7/1 b	$32^{\prime\prime}$ (16.669 mm) dia. 6" \pm 1/32" (14.274 \pm .787 nm) to top face of fuel bowl. 6" (11.13 mm) measured between upper casting face and outer float top.	

Governor.

Governor. Governor lever spring: Free length: inside hooks 3.8" (96.5 mm). End Play .005" (.127 mm) Rate: 18 lbs/in + 5%. No of coils: 26. .010" (.254 mm)

Load at 1" (25.4 mm) deflection: 25 lbs. (11.34 kg) + 1 lb. (.454 kg.) Initial wound-in load: 7 lbs. (3.175 kg). Control Rod: Free length: inside hooks 2.687" (68.25 mm). Rate: 64 lbs./in \pm 5%. No of coils: $11\frac{1}{2}$. Compensating Spring: Load at $\frac{1}{2}$ " (12.7 mm) deflection: 38 lbs. (17.237 kg) \pm $1\frac{1}{2}$ lbs. (.681 kg). Initial wound-in load: 6 lbs. (2.722 kg).

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VAPORISING OIL ENGINE, PART No. 500038

(Manufactured by the Standard Motor Co.)

ENGINE-85 mm bore, fitted to tractors Type TE-D20, TE-E20.

Stroke 92 mm. Piston Displacement 127 cu. ins. (2088 c.c.)

Compression ratio 4.8 to 1.

Maximum belt horse power-23.9.

Tightening Torque—Cylinder Head Nuts 60 to 65 lbs. ft. (8.25—8.95 kg. metres). Big End Nuts 42 to 46 lbs. ft. (5.8—6.4 kg. metres). Main Bearing Nuts 90 to 100 lbs. ft. (12.4—13.8 kg. metres). Flywheel Cap Screws 42 to 46 lbs. ft. (5.8—6.4 kg. metres).

Component Details		ensions Iew	Clear: Ne		Permissib Clearance or		Remarks
	Ins.	mms.	lns.	mms.	Ins.	mms.	
Crankshaft. Journal Diameter	2.4795 2.4790	62.979 62.967	.0025	0/4	007	150	Similar tolerances for re
Bearing Diameter (Fitted)	2.4815 2.4805	63.030 63.015	.0010	.064 .025	.006 dry	.152	ground crankshaft to .020" .030", .040" (.508, .762 1.016 mm) undersize.
`	2.4005	03.015					
Crankshaft End Float. Centre Journal Length.	1.7507 1.7498	44.468 44.445					Crankshaft end float con
			.0117 .00 4 8	.297 .122	.010 dry	.254	trolled by thickness of thrust washers.
Centre Bearing Cap width + 2 thrust washers.	1.7450 1.7390	44.323 44.171	.0070	.122	ury		thrust wasners.
Big End.							
Crankpin Diameter	2.0861 2.0866	52.987 53.000					Similar tolerances for re-
	2.0000	55.000	.0024	.061	.006	.152	ground crankshaft to .020"
Bearing Diameter	2.0985	53.302	.0006	.015			.030", .040" (.508, .762, 1.016 mm) undersize.
C C	2.0872	52.015					noro miny undersize.
Connecting Rod End Floa							
Crankpin Length	1.1890 1.1870	30.201 30.150					
			.0115	.292			
Con-Rod Width	1.1795	29.959	.0075	.191			
	1.1775	29.909					
Ovality—Journals &							Minimum diameter to be
Crankpins.					0.002	.051	such that the permissible worn clearance for bearings
Taper—Journals & Crankpins.					0.002	.051	is not exceeded.
imall End.							
Bore for Bush	1.0000 .9995	25. 4 25.387					
	.,,,,,	23.307	0035	+ .09			Heat piston in boiling
Bush, Ext. Dia.	1.0045	25.514	+.0050	13			water for removal and
	1.0035	25.489					fitting of gudgeon pin.
Bush, Int. Dia.	.8752	22.230					
	.8738	22.220	+ .00035	+ .009			These classes former
Gudagan Pin Dia	07510	22.220	00030	008			These clearance figures taken at 68 F.
Gudgeon Pin, Dia.	.87510 .87485	22.228 22.221					
			+.00045	+ .011 001	4		
Gudgeon Pin Holes in Piston	.8853 .87505	22.233 22.226	00003	001			

B9.

Component Details		ensions New		arance lew		ble Worn or Dimension	Remarks
	lns.	mms.	Ins.	mms.	Ins.	mms.	
Vistons & Sleeves. Piston Dia.—(Thrust Side Top Skirt)	3.3429 3.3438	84.905 84.933					Sleeves and pistons graded F.G.H. in steps of .0004" (.010 mm).
Sleeve Bore (Parallel)	3.3460 3.3471	84.988 85.016					
Piston Dia. (Thrust Side Bottom Skirt)	3.3442 3.3453	84.943 84.97 I		·			
Top Land Clearance			.017 .019	.432 .483			
Ring Groove Width Top 2nd and 3rd.	.0797 .0807	2.024 2.050	.0030 .0010	.076 .025	.005	.127	
Compression Ring Width Top 2nd & 3rd.	.0787 0777	1.999 1.974	.0010	.025			
Ring Groove Width (4th.)	.1895 .1885	4.813 4.788	.0030	.076	.005	.127	Similar tolerances for oversize pistons $+.020''$ (.508 mm).
Scraper Ring Width (4th.)	.1875 .1865	4.763 4.737	.0010	.025			Oversize rings + .010" (.245 mm) + .020" (.508 mm) + .030" (.762 mm).
Ring Groove Width (5th.)	.1580 [.] .1570	4.013 3.987	.0030	.076	.005	.127	Replacement sleeves available as standard size, and rebored $+$.020" (.508 mm).
Slotted Scraper RingWidth (5th.)	h .1560 .1550	3.962 3.937	.0010	.025	.005	.12/	
Ring Gap (Closed)			.010 .006	.25 .15			
Clearance Between :							
Sleeve & Upper Block			.045 .015	1.1 4 3 .381			Dimensions taken respec- tively at top flange and spigot of sleeve.
Sleeve & Lower Block			.003 .0005	.076 .013			
Stand-out of Sleeve			.003 .0055	.076 .140			Desired clearance when assembled.
Vater Pump & Thermosta	t.						
Housing Bore for Bearing	1.1813 1.1807	30.005 29.990	+.0007	+.018			
Bearing Case, Ext. Dia.	1.1811 1.1806	30.000 29.987	000 4	—.010			
Dil Pump. Approximate capacity at S	50 Ibs. pe	er square inch	ı (3.52 kg/sq. cr	n.) is 3.95 gal	lons (16.94 litr	es) per minut	e at 2.000 r.p.m. (Engine)
Outer Rotor, outside dia.	1.598 1.599	4 0.589 40.615	.001	.025			
Housing, internal dia.	1.601 1.600	40.665 40.6 4 0	.003	.075			
Rotor depth—outer and inner :	0.9995 0.9985	25.387 25.362	.0005	.013			A combined worn clearance
Housing depth	1.001 1.000	25.403 25.400	.0015	.038			of .004" (.101mm) indicates need of cover and housing face lapping.

Component Details	Dir	nensions New		arance lew	Permissible Clearance or		Remarks
Inner rotor, major dia.	Ins. 1.171 1.172	mms. 29.743 29.769	Ins.	mms.	Ins.	mms.	
Inner rotor, minor dia.	.729 .731	18.517 18.567					
Clearance on rotors	., 51	10.507	.004 .0005	.102 .013			Where clearance exceed .010" (.253 mm) new partshould be fitted.
Camshaft. Front Journal Dia.	2.0590 2.0595	52.299 52.311	.0045	.114	00/5	.164	
Bore in Block	2.0635 2.0620	52.413 52.375	.0025	.051	.0065	.104	Max. wear on camsha journals .003" (.076 mm and .0035 (.088 mm) i cylinder block.
2nd Journal Dia. 3rd. ,, ,, } Rear ,, ,, }	1.71575 1.71525	43.580 43.567	.0045	.114	.0065	.164	
Bore in Block	1.71975 1.71825	43.683 43.645	.0025	.051			
Locating Groove	.1885 .1865	4.788 4.737	.0065	.165			This clearance determine
Locating Plate	.1835 .1820	4.661 4.623	.003	.076			camshaft end float.
Tappets & Valves. Tappet Bore in Block	.9380 .9373	23.825 23.807	.0013	.033			
Tappet Dia.	.9371 .9367	23.802 23.792	.0002	.005			
Valve Tip Clearance Inlet Exhaust			.010 .012	.254 .305			
Valve Guide Bore Dia.	.313 .312	7.950 7.925					
Inlet Valve Stem Dia.	.311 .310	7.899 7.874	.001 .003	.025 .076			
Exhaust Valve Stem Dia.	.309 .308	7.849 7.823	.003 .005	.076 .127			
Valve Head Diameter : Inlet	1.176 1.172	29.570 29.769					
Exhaust	1.051 1.047	26.695 26.59 4					
Guide projection above spring seat.	9/16″	14.3					
Guide projection above	9/16" alve head 4 86 mm). F	14.3 45°. Valve s itted load 38	lbs \pm 2 lb. (17)	.237 kg \pm .90	-		
	3.406 3.403	340.512 340.436	031 023	787 58 4			Flywheels balanced indivi ually. Held to cranksha by 4 set screws locke in pairs. Single down
Starter Gear Ring Inside Dia.	13.380 13.375	339.852 339.725					Locating holes in flywhe 90° apart, in cranksha

Run-out of clutch contact face at outer dia. should not exceed .003" (.076 mm), Clearance between starter pinion and ring gear, Engine Serial No.SIE—S67028E, .156" (3.962 mm). Engine Serial No. S67029E onwards .114" (2.896 mm). Face-up starter mounting flange or fit shims to suit.

Carburettor.

Zenith Type 24T-2 (Min./Max. Adj. Jet) Choke Tube : 17. Main Jet : 105. Adj. Needle : 1.25 drilled. S.R. Jet : 60. Progression : 120. Needle Seating : 1.5 mm. Petrol level at 4' 6" Head : 15 mm. Inter-con : Imm drilled. Air Jet : 2.0. Petrol Inlet Boss and adjusting needle head Stamped V.O.

Governor.

Governor lever spring: Free length: inside hooks 3.8" (96.5 mm). End Play .005" (.127 mm) Rate: 18 lbs/in ± 5%. No of coils: 26. .010" (.254 mm)

Load at 1" (25.4 mm) deflection: 25 lbs. (11.34 kg) \pm 1 lb. (.454 kg.) Initial wound-in load: 7 lbs. (3.175 kg).

Control Rod: Free length: inside hooks 2.687" (68.25 mm). Rate: 64 lbs./in \pm 5%. No of coils: 11 $\frac{1}{2}$.

Compensating Spring: Load at $\frac{1}{2}$ " (12.7 mm) deflection: 38 lbs. (17.237 kg) $\pm 1\frac{1}{2}$ lbs. (.681 kg). Initial wound-in load: 6 lbs. (2.722 kg).

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DIESEL ENGINE

(Manufactured by the Standard Motor Co.)

ENGINE-3.3" (80.96 mm) bore \times 4" (101.6 mm) stroke, 4 cylinders, fitted to Tractors Type TE-F20.

Displacement 127.68 cu. ins. (2092 cc.)

Compression Ratio 17 : 1

Firing Order 1, 3, 4, 2.

Maximum Belt Horse Power-26 at 2,000 r.p.m.

Tightening Torques :-- Cylinder Head Nuts 75 to 80 lb. ft.

Component Details	Dimensions New		Clearance New		Remarks
	ins.	mms.	ins.	mms.	
Main Bearing Housings : Front					For checking external dia. of al Housings—break housing and
Housing Spigot Ext. Dia.	5.0615 5.0605	128.562 128.537	.0030	.076 .013	assemble on a mandrell 2.9180" 2.9183" (74.117/74.125 mm.) dia without bearings. Tighter Socket Screws 29—31 lb. ft
Bore in Cylinder Block	5.0635 5.0620	128.613 128.575	.0003	.013	(4—4.3 kg.m).
Centre					
Housing Ext. Dia.	6.8115 6.8105	173.012 172.987	.0035	.089	
			.0005	.013	
Bore in Cylinder Block	6.8140 6.8120	173.076 173.025			
Rear					
Housing Spigot Ext. Dia.	6.8735	174.587			
	_ 6.8725	174.562	.004	. 102	
Bore in Cylinder Block	6.8765	174.663	.001	.025	
	6.8745	174.613			
Main Bearings.					For checking bore dia. assemble
Housing Bores,	2.9165	74.079			both halves with ring dowels
Front, Centre and Rear.	2.9170	74.092			fitted and tighten screws to 29—31 lb. ft. (4—4.3 kg.m).
Radial thickness of Bearings,	.08250	2.096			Front and rear Main Bearing
Front, Centre and Rear	. 08225	2.089			Liners are identical but centre
Bearing Bore Dia.	2.7540	69.952			is .100" (2.54 mm.) wider. With Bearings fitted into
Front, Centre and Rear	2.7530	69.926			Housings tighten to specified
			.0040	. 102	torque setting. Desired clearance when
			.0025	.064	assembled.
Crankshaft.	a 7545	(0.0()			Similar tolerances for reground
Journal Dia.	2.7505 2.7500	69.863 69.850			Crankshaft to .010", .020", .030", .040" (.254, .508, .762, 1.016
					mm.) undersize.
Crankshaft End Float					
Rear Journal Length	1.7507	44.468			
	I.7498	44.445	.0117	. 297	
	1 550	39,599	.0048	. 122	
Rear Bearing Housing width	I.559 I.557	39.548	•	:	
Thrust Washer thickness	.093	2.362			
	.091	2.311			

Component Details	Dimensions New		Clearance New		Remarks
	ins.	mms.	ins.	mms.	петагкз
g End.					
Crankpin Dia.	2.3115 2.3110	58.712 58.699	.0035 .0020	. 089 . 051	Similar tolerances for regroun crankshaft to .010", .020", .030 040", .060" (.254, .508, .76 1.016, 1.524 mm.) undersize
Bearing Bore Dia.	2.3145 2.3135	58.789 58.763			
Con. Rod Bore Dia.	2.4575 2.4570	62.421 62.408			For checking bearing bores- assemble Con. Rod and tighte to specified setting.
Bearing Shell thickness	.07175 .07150	1.822 1.816			to specified setting.
onnecting Rod End Float.					
Crankpin Length	1.4390 1.4370	36.551 36.500	.0105 .0065	. 267 . 165	For service purposes :— Max. permissible variation i Con. Rod total weights l½ oz: (42.52 gms.). Metal may b removed from web on bearin cap for fine weight adjustmen
Con. Rod Width	I . 4305 I . 4285	36.335 36.28 4			Con. Rod assembly weigh graded—N, P, Q. S. T. U—i I½ oz. stages.
mall End.					
Bore for Bush	1.126	28.600 28.575	0050	127	
Bush External Dia.	. 300 . 285	28.702 28.664	0025	<u> </u>	
Bush Internal Dia.	l .0002 .9998	25.405 25.395	+ .00035 	+.009 009	Specified clearance using draw ing sizes, but bore of Bus machined to suit Gudgeon Pi
Gudgeon Pin Dia.	1.00015 .99985	25.404 25.396	+.0003	+.008 —.008	for the required fit. Specified clearance using draw ing sizes but desired fit of
Gudgeon Pin Holes in Piston.	1.00015 .99985	25.404 25.396			gudgeon pin in Piston obtaine by selective assembly. Heat piston in hot oil fo fitting.
stons, Sleeves and Inserts.					
ellworthy Type Pistons.					
Original Piston Skirt Dia. (Round and Parallel).	3.183 3.182	80.848 80.823	. 0070 . 0050	. 178 . 127	Ungraded up to Engine No SA.7739E.
Sleeve Bore (Parallel).	3.1890 3.1880	81.001 80.975			Replacement sleeves available a standard size only, (i.e. no pro vision made for reboring an fitting oversizes).
lst Modification—Engine No. SA.7740E — SA.9205E.					
Piston Skirt Dia. — F. Grade (Round and Parallel).	3.1834 3.1829	80.858 80.846			Pistons and Sleeves graded F& G
—G. Grade	3.1838 3.1834	80.868 80.858	.0056	. 142 . 120	
Sleeve Bore — F. Grade (Parallel).	3.1885 3.1880	80.988 80.975	.0047	. 120	Replacement Pistons and Sleeve available at standard size onl (i.e. no provision for oversizes)
—G. Grade	3.1890 3.1885	81.001 80.988	.0056	. 142	· · ·

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