



YAMAHA

SNOWMOBILE

ET300E

**SUPPLEMENTARY
SERVICE MANUAL**

FOREWORD

This supplementary service manual for ET300E has been published to supplement the ET300D supplementary service manual (8K0-28197-10). For complete information on service procedures, it is necessary to use this Supplementary service Manual together with the following manuals.

ET300C Service Manual (8H9-28197-10)

ET300D Supplementary Service Manual (8K0-28197-10)

NOTE: _____

The Research and Engineering Department of Yamaha are continually striving to further perfect all models. Improvements and modifications are therefore inevitable.

In light of this fact, all specifications within this manual are subject to change without notice. Information regarding changes is forwarded to all Authorized Yamaha Dealers as soon as available.

**SERVICE DEPT.
INTERNATIONAL DIVISION
YAMAHA CO., LTD.**

Particularly important information is distinguished in this manual by the following notations:

NOTE:

A NOTE provides key information to make procedures easier or clearer.

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ET300E
SUPPLEMENTARY SERVICE MANUAL
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1. NEW SERVICE PROCEDURE

(New service procedure applied to the 1981 ET300E.)

A. Piston ring inspection

As a result of the recent change in the piston ring, item 10, page 2-8 of the ET300C service manual (8H9-28197-10) should be read as follows:

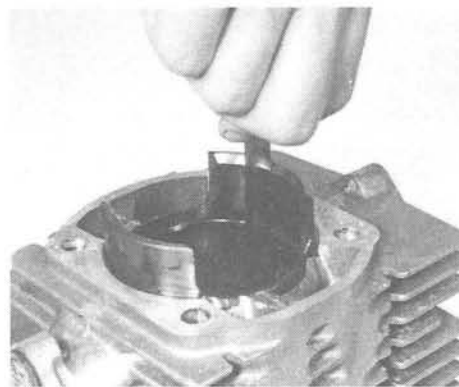
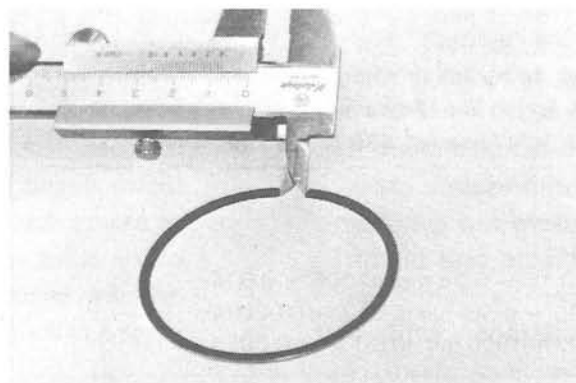
10. Piston ring inspection

- a. Check rings for scoring. If any severe scratches are noticed, replace ring set.
- b. Measure ring end gap in free position. If beyond tolerance, replace ring set.

- c. Push the ring into the bore and check end gap clearance with a feeler gauge. If beyond tolerance, replace ring set.

Ring end gap, installed		
	Minimum	Maximum
Top	0.30 mm (0.012 in)	0.50 mm (0.020 in)
Second	0.30 mm (0.012 in)	0.50 mm (0.020 in)

Ring end gap, free	
Top	Approx. 6.5 mm (0.26 in)
Second	Approx. 7.5 mm (0.30 in)



2. SPECIFICATIONS

NOTE: * New specification
(Compared with 1980 ET300D)

General

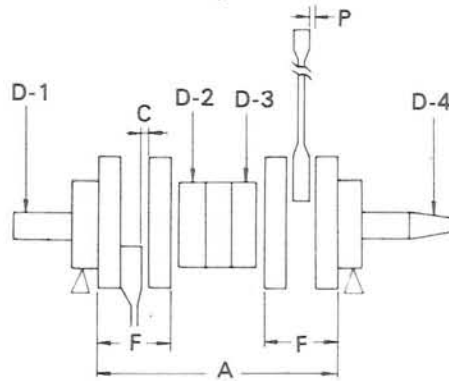
Model	ET300E
Model (I.B.M. No.)	* ET300E (8L3)
Frame I.D. & starting number	* 8L3-020101
Engine I.D. & starting number	* E294-020101
Dimension:	
Overall length	2,385 mm (93.9 in)
Overall width (std)	935 mm (36.8 in)
Overall height (w/windshield)	965 mm (38.0 in)

Engine

Description:	
Engine type	Fan cooled two-stroke 5-port, twin cylinders
Engine model	E294
Displacement	294 cc (17.94 cu.in)
Bore × Stroke	56 × 59.6 mm (2.21 × 2.35 in)
Effective compression ratio	6.5 : 1
Starting system	Recoil hand starter
Ignition system	C.D.I.
Lubrication system	"Autolube" oil injection
Cylinder head:	
Combustion chamber volume	18.3 cc (1.12 cu.in) with spark plug
Compression chamber type	Dome + Squish
Head gasket thickness	0.5 mm (0.02 in)
Cylinder:	
Material	Cast iron sleeves aluminum
Bore size	56 mm (2.21 in)
Taper limit	0.05 mm (0.0020 in)
Out of round limit	0.01 mm (0.0004 in)
Piston:	
Piston skirt clearance (Measuring point)	0.040 ~ 0.045 mm (0.0016 ~ 0.0018 in) (10 mm from piston skirt end)
Piston oversize	1st 56.25 mm (2.213 in) 2nd 56.50 mm (2.224 in) 3rd 56.75 mm (2.234 in) 4th 57.00 mm (2.244 in)
Piston pin outside diameter × length	φ16 × 47 mm (φ0.630 × 1.85 in)
Piston ring:	
Piston ring design (Top)	Keystone
Piston ring design (2nd)	Plane
Ring end gap (installed) (Top)	* 0.15 ~ 0.35 mm (0.006 ~ 0.014)
Ring end gap (installed) (2nd)	0.30 ~ 0.50 mm (0.012 ~ 0.020 in)
* Ring groove side clearance (2nd)	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)
Small end bearing:	
Type	Needle bearing
Big end bearing:	
Type	Needle bearing

Crankshaft:

Crankshaft assembly width (A)	160 ± 0.1 mm (6.30 ± 0.004 in)
Crankshaft assembly width (F)	52 ⁺⁰ / _{-0.05} mm (2.047 ⁺⁰ / _{-0.002} in)
Crankshaft deflection (D)	0.03 mm (D-1) 0.04 mm (D-2) 0.04 mm (D-3) 0.03 mm (D-4)
Connecting rod big end side clearance (C)	0.25 ~ 0.35 mm (0.010 ~ 0.014 in)
Connecting rod small end deflection (P)	2.0 mm (0.079 in)



Crank pin outside diameter × length	φ22 × 51 mm (φ0.866 × 2.008 in)
Crank pin type	Solid shaft assembly type with serration
Crank bearing type (Left) × q'ty	#6306 special 1 pc.
Crank bearing type (Center) × q'ty	#6206 special × 2 pcs.
Crank bearing type (Right) × q'ty	#6305 special × 1 pc.
Crank oil seal type (Left) × q'ty	FPJ-30 72 8 2TS × 1 pc.
Crank oil seal type (Center) × q'ty	Labyrinth seal × 1 pc.
Crank oil seal type (Right) × q'ty	FPJ-25 48 8TS × 1 pc.

Carburetor:

Type & manufacturer/quantity	B38-32 MIKUNI × 1 pc.
I.D. Mark	8H901
Main jet (M.J.)	#210
Pilot jet (P.J.)	#90
Pilot screw (P.S.)	1-1/2 turns out
Throttle valve (Th.V.)	#185
Valve seat (V.S.)	φ1.5 mm (0.059 in)
Float height	25 ± 1 mm (0.98 ± 0.04 in)
Idling engine speed	1600 r/min

Main jet setting chart:

Altitude	Temperature	-30°C (-22°F)	-20°C (-4°F)	-10°C (14°F)	0°C (32°F)	10°C (50°F)	20°C (68°F)
Sea level		#220	#210 (Std.)				#200
~ 600m (2000 ft)			#210 (Std.)			#200	
~ 1200m (4000 ft)		#210 (Std.)		#200			#190
~ 1800m (6000 ft)			#200		#190		#180
~ 2400m (8000 ft)			#200			#190	#180
~ 3000m (10000 ft) or more			#190				#180

Lubrication:	
Autolube pump — Color code	Blue
Autolube pump — Minimum stroke	0.20 ~ 0.25 mm (0.0079 ~ 0.0098 in)
Autolube pump — Maximum stroke	1.65 ~ 1.87 mm (0.0650 ~ 0.0736 in)
Autolube pump — Reduction ratio	1/36
Autolube pump — Output Min./200 strokes	0.50 ~ 0.63 cc (0.0169 ~ 0.0213 oz)
Autolube pump — Output Max./200 strokes	4.15 ~ 4.70 cc (0.1403 ~ 0.1589 oz)
Autolube pump wire free play	25 ± 1 mm (0.98 ± 0.04 in) at idle
Oil tank capacity	2.4 liter (2.5 US. qt)
Oil grade	YAMALUBE 2-cycle

Drive and track suspension

Transmission:	
Type	V-belt automatic centrifugal engagement
Drive ratio	3.5 : 1 ~ 1 : 1
Engagement rpm	* 3100 ~ 3300 r/min
Primary spring:	
Part No.	90501-55345
Color code	Red—Red
Secondary spring:	
Part No.	90508-40080
Color code	No. painted
Secondary spring pre-load (twist)	160°
Sheave distance	266 ± 2 mm (10.47 ± 0.08 in)
Sheave off-set	11 ± 1 mm (0.43 ± 0.04 in)
V-belt width and outer line length	31.6 × 1,099 mm (1.24 × 43.3 in)
V-belt wear limit	26 mm (1.02 in)
Track suspension:	
Type	Slide rail suspension
Damper type	Oil and gas damper
Spring color code (Rear)	No. painted
Slide runner wear limit	10 mm (0.394 in)
Track width	380 mm (15 in)
Track deflection	25 ~ 30 mm/10 kg (0.98 ~ 1.18 in/22 lb)
Length on ground	650 mm (25.6 in)
Wheel sprocket material and number of teeth	Polyethylene 11T
Stopper band length	210 mm (8.27 in)
Secondary drive:	
Type	Chain (#40K-1)
Reduction ratio	22/13 (1.692)
Chain pitch × Number of links	12.7 mm (0.5 in) × 60L
Free play	10 $\begin{smallmatrix} +5 \\ -2 \end{smallmatrix}$ mm (0.4 $\begin{smallmatrix} +0.2 \\ -0.08 \end{smallmatrix}$ in)
Chain housing oil quantity	450 cc (15.2 oz)
Chain housing oil grade	Gear oil API "GL3" (SAE #75 or 85)
Brake:	
Type	Disc brake
Brake pad thickness	7.3 mm (0.287 in)
Brake pad wear limit	1.0 mm (0.04 in)
Gap between pad and disc	0.2 ~ 1.0 mm (0.008 ~ 0.039 in)

Chassis

Frame: Material	Aluminum + Steel
Steering system: Caster (ski column) Camber Ski length × width × thickness Ski stance Ski toe-out Steering linkage type Lock to lock angle (ski) Lock to lock angle (steering column)	25° 0° 980 × 120 × 1.6 mm (38.6 × 4.7 × 0.06 in) 800 mm (31.5 in) 0 ~ 6 mm (0 ~ 0.23 in) Tie-rod Right ski, L: 27.6° R: 24.8° Left ski, L: 24.8° R: 27.6° Right: 54.3° Left: 56.3°
Front suspension: Type Damper type	Leaf spring Oil damper
Fuel tank: Capacity Fuel grade	22.7 liter (6 US. gal) Regular gasoline

Electrical

Ignition system: Type—flywheel magento (C.D.I. type) Model/manufacture Voltage Pulser coil resistance Charging coil resistance Charging coil resistance	F3T352/MITSUBISHI 12V 9.0Ω at 20°C (68°F) (White/Red—Black) 350Ω at 20°C (68°F) (Brown—Black) 15.0Ω at 20°C (68°F) (Blue—Black)
Ignition timing: B.T.D.C.	1.4 ± 0.1 mm (0.055 ± 0.004 in)
Ignition coil: Model: Manufacturer Spark gap Primary winding resistance Secondary winding resistance Diode (Yes or No)	CM62-20 HITACHI or * YW-51 TOYO DENSO 9 mm (0.4 in)/300 r/min ← 11 mm (0.6 in)/3,000 r/min ← 0.15Ω at 20°C (68°F) * 0.12Ω at 20°C (68°F) 3.6kΩ at 20°C (68°F) * 4.0kΩ at 20°C (68°F) No ←
Spark plug: Type & quantity Spark plug gap	NGK BR-9ES × 2 pcs. 0.7 ~ 0.8 mm (0.028 ~ 0.031 in)
Spark plug cap: Type Noise suppressor resistance	Rubber type with noise suppressor 5kΩ at 20°C (68°F)
C.D.I. unit: Model/Manufacturer	8H4-20/MITSUBISHI
Lighting system: Lighting output Lighting coil resistance Headlight type Bulb wattage/q'ty Tail/stop light wattage	12V-100W 0.19Ω at 20°C (68°F) (Yellow—Black) Semi shield 12V-60/60W × 1 pc. 12-8W/23W
A.C. regulator: Model/manufacture Voltage	TRIZ-24B/HITACHI or S8516B/TOSHIBA 13.8 ± 0.5V

