



# SERVICE DATA

## POWER BLOWER

**PB-655** (Serial number : 36000001-36999999)

**PB-755** (Serial number : 36000001-36999999)

### INTRODUCTION

We are constantly working on technical improvement of our products. For this reason, technical data, equipment and design are subject to change without notice. All specifications and directions in this SERVICE DATA are based on the latest products information available at the time of publication. ECHO SERVICE MANUAL Ord. No. 403-12 contains lots of information for servicing these models.

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**KIORITZ CORPORATION**

Reference No. **21-63G-00**  
**ISSUED: 200705**

## 1 SERVICE INFORMATION

## 1-1 Specifications

Model		PB-655	PB-755
Dimensions	Length*	mm(in)	380 (15.0)
	Width*	mm(in)	480 (18.9)
	Height*	mm(in)	525 (20.7)
Dry weight**		kg(lb)	11.3 (24.89)      11.9 (26.21)
Engine	Type	KIORITZ, air-cooled, two-stroke, single cylinder	
	Rotation	Anticlockwise as viewed from the output end	
	Displacement	cm <sup>3</sup> (in <sup>3</sup> )	63.3 (3.86)
	Bore	mm(in)	48.0 (1.89)
	Stroke	mm(in)	35.0 (1.38)
	Compression ratio	6.3	
Carburettor	Type	Diaphragm, horizontal-draught, with primer	
	Model	Walbro WYK-192	
Ignition	Type	CDI (Capacitor discharge ignition) system	
	Spark plug	BPM8Y	
Exhaust	Muffler type	Spark arrestor muffler	
Starter	Type	Automatic rewind	
	Rope diameter x length	mm(in)	3.5 x 1000 (9/64 x 39 1/2)
Fuel	Type	Premixed two-stroke fuel	
	Mixture ratio	50 : 1 (2 %)	
	Petrol	Minimum 89 octane unleaded	
	Two-stroke air cooled engine oil	ISO-L-EGD (ISO/CD13738), JASO FC/FD	
	Tank capacity	L (U.S.fl.oz.)	2.0 (67.7)
Throttle	Mount	Tube-mounted throttle with cruise control	
Blower	Fan type	Centrifugal, single stage	
	Max. air volume (with pipes)	m <sup>3</sup> /min (ft <sup>3</sup> /min)	17.7 (625)**
	Max. air velocity (with pipes)	m/s (mph)	92 (205)
	Discharge ID	mm (in)	70 (2.75)

ID : Inner diameter.

\* Without flexible pipe and blower pipes.

\*\* With flexible pipe and blower pipes.

**1-2 Technical data**

Model		PB-655	PB-755
Engine			
Idling speed	r/min	2400 - 2800	
Wide open throttle speed	r/min	6800 - 7300	
Compression pressure	MPa (kgf/cm <sup>2</sup> ) (psi)	1.05 (10.7) (152)	
Ignition system			
Spark plug gap	mm(in)	0.6 - 0.7 (0.024 - 0.028)	
Minimum secondary voltage at 1000 r/min	kV	12	
Primary coil resistance	Ω	150 - 250	
Secondary coil resistance	kΩ	1.2 - 1.8	
Pole shoe air gaps	mm(in)	0.3 - 0.4 (0.012 - 0.016)	
Ignition timing	°BTDC	30	
Carburettor			
Venturi size	mm(in)	15.0 (0.591)	
Throttle bore	mm(in)	15.0 (0.591)	
Idle adjust screw initial setting	turn back*	8	
Idle mixture needle initial setting	turn in**	10	
H mixture needle initial setting	turn back	3 3/4	
Test Pressure, minimum	MPa (kgf/cm <sup>2</sup> ) (psi)	0.05 (0.5) (7.0)	
Metering lever height	mm (in)	1.5 (0.06) lower than diaphragm seat	

BTDC: Before top dead centre.

\* Refer to page 7 on 2-2 initial idle adjust screw.

\*\* Screw in idle mixture needle from initial thread engagement (at the point that the clicking sound is heard).

## 1-3 Torque limits

Descriptions		Size	kgf•cm	N•m	in•lbf	
Starter system	Starter pawl assembly	M 10	80 - 100	8 - 10	70 - 90	
	Starter case	M 5***	35 - 50	3.5 - 5	30 - 45	
Ignition system	Flywheel	M 10	200 - 240	20 - 24	175 - 210	
	C.D.I module	M 5	60 - 100	6 - 10	50 - 90	
Fuel system	Spark plug	M 14	150 - 170	15 - 17	130 - 150	
	Carburettor	M 5	40 - 55	4 - 5.5	35 - 48	
	Intake insulator	M 5	35 - 45	3.5 - 4.5	30 - 40	
	Fuel tank	M 5	20 - 40	2 - 4	17 - 35	
Engine	Crankcase	M 5	70 - 110	7 - 11	60 - 95	
	Cylinder	M 5	70 - 110	7 - 11	60 - 95	
	Engine plate	M 5*	20 - 40	2 - 4	17 - 35	
	Engine mount	M 6	100 - 150	10 - 15	90 - 130	
	Cylinder cover	M 5	40 - 55	4 - 5.5	35 - 48	
	Engine cover	M 5**	20 - 40	2 - 4	17 - 35	
	Muffler	M 6***	110 - 150	11 - 15	95 - 130	
	Muffler stay	M 5	70 - 110	7 - 11	60 - 95	
	Exhaust guide	M 4	15 - 25	1.5 - 2.5	13 - 22	
Others	Fan	M 5	50 - 75	5 - 7.5	45 - 65	
	Fan case	M 5**	40 - 55	4 - 5.5	35 - 48	
	Blower grid	M 5**	20 - 40	2 - 4	17 - 35	
	Cushion	Frame side	M 5***	20 - 40	2 - 4	17 - 35
			M 5**	20 - 40	2 - 4	17 - 35
	Fan case side	Top	M 5**	20 - 40	2 - 4	17 - 35
		Bottoms	M 5**	80 - 100	8 - 10	70 - 90
	Main pipe	M 5	20 - 40	2 - 4	17 - 35	
	High tension lead clip	M 5**	40 - 50	4 - 5	35 - 45	
	Harness fixture	M 5**	20 - 40	2 - 4	17 - 35	
Throttle lever <sup>††</sup>	M 6	20 - 30	2 - 3	17 - 26		
Regular bolt, nut and screw	M 3	6 - 10	0.6 - 1	5 - 9		
	M 4	15 - 25	1.5 - 2.5	13 - 22		
	M 5	25 - 45	2.5 - 4.5	22 - 40		
	M 6	45 - 75	4.5 - 7.5	40 - 65		
	M 8	110 - 150	11 - 15	95 - 130		

\* Tapping screw

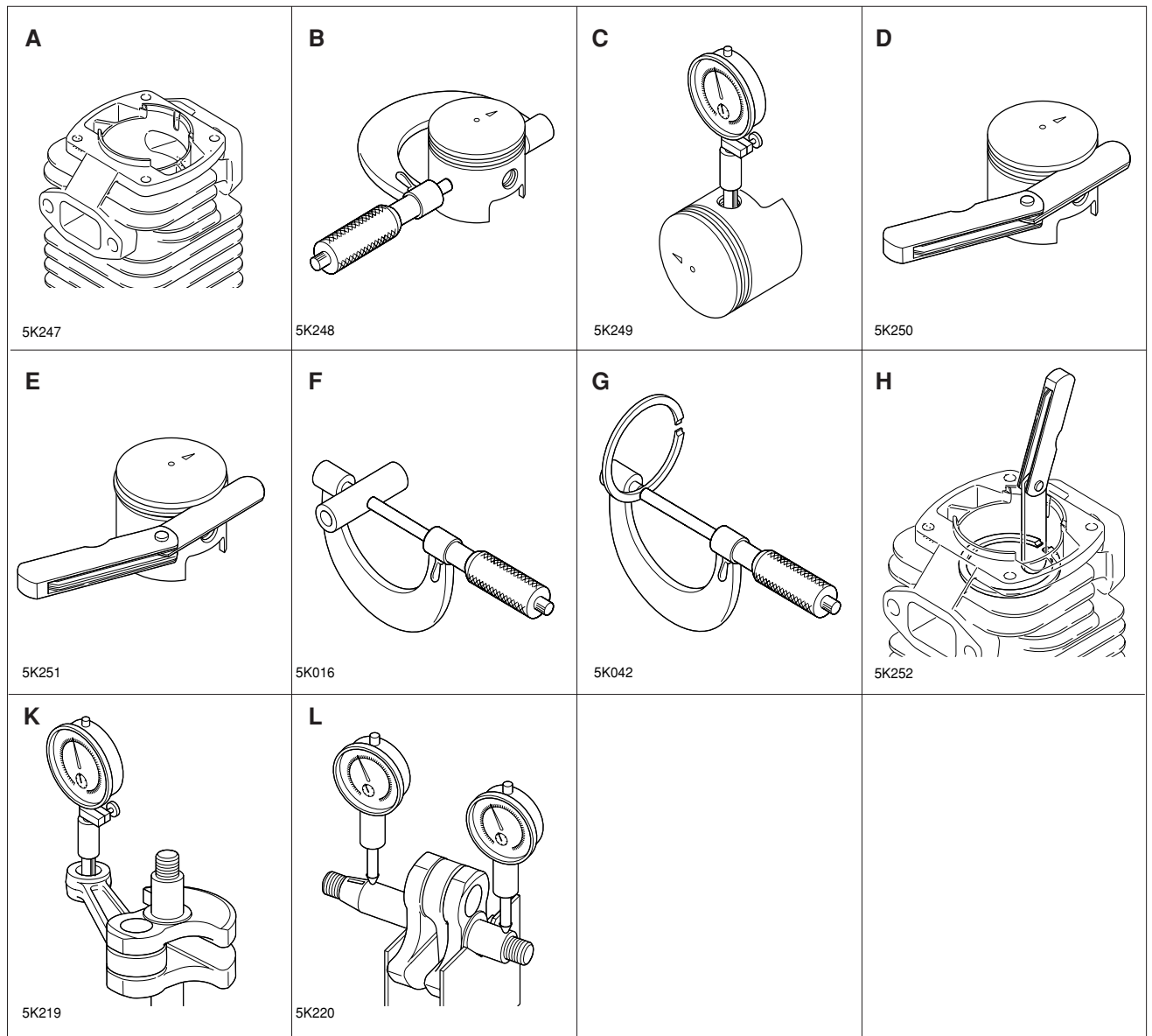
\*\* Tapping bolt

\*\*\* Apply thread locking sealant (See below)

## 1-4 Special repairing materials

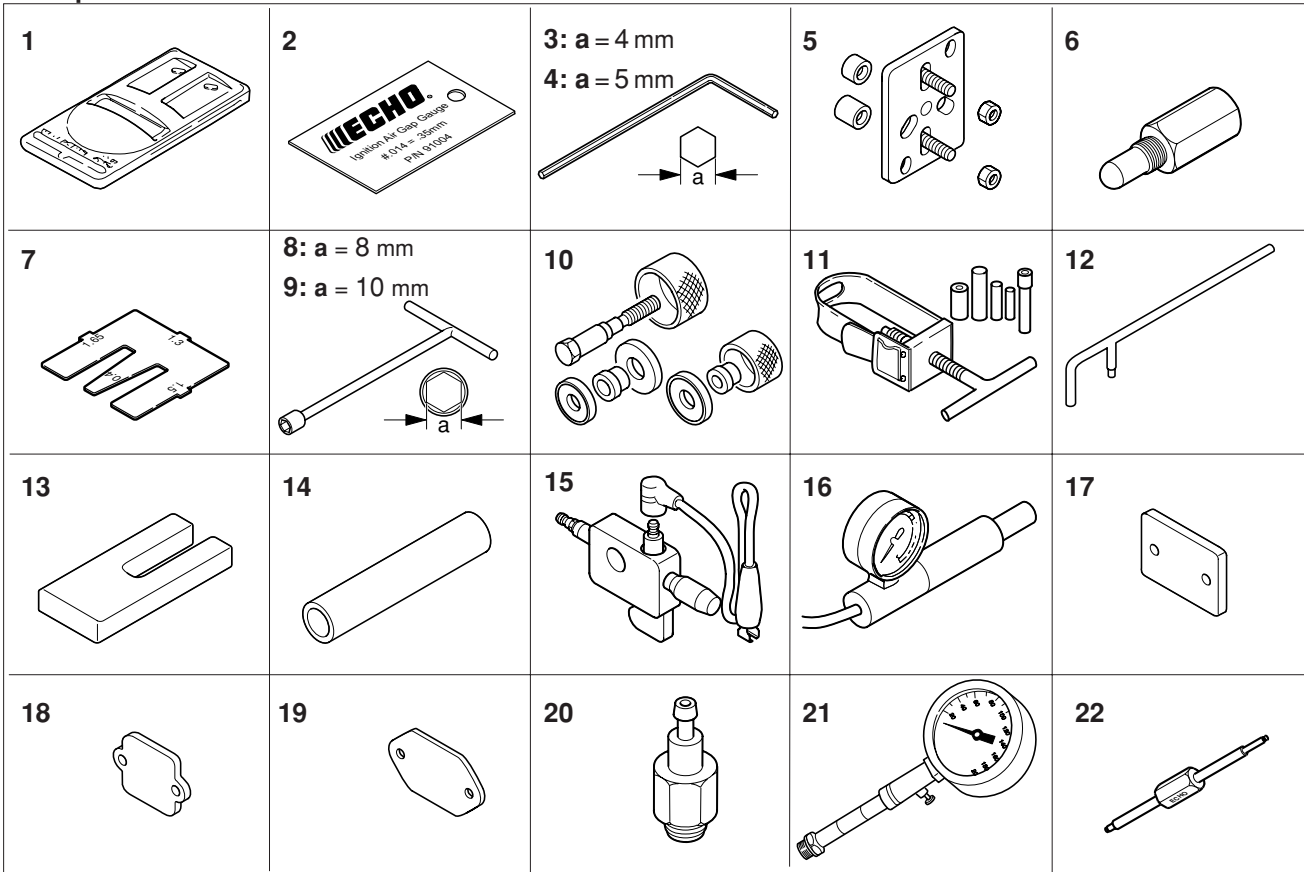
Material	Location	Remarks
Grease	Rewind spring	Lithium based grease
	Starter center post	
	Oil seal inner lips	
Thread locking sealant	Ball bearing	Loctite #675 or equivalent
	Muffler	Loctite #242, ThreeBond #1324 or equivalent
	Starter case	Loctite #222, ThreeBond #1342 or equivalent
	Cushion (Frame side)	Loctite #222, ThreeBond #1342 or equivalent

1-5 Service limits



Description		mm (in)
A	Cylinder bore	When plating is worn and aluminum can be seen
B	Piston outer diameter	Min. 47.95 (1.888)
C	Piston pin bore	Max. 10.030 (0.395)
D	Piston ring groove,	1st Max. 1.65 (0.065)
		2nd Max. 1.6 (0.063)
E	Piston ring side clearance	Max. 0.1 (0.004)
F	Piston pin outer diameter	Min. 9.98 (0.393)
G	Piston ring width	Min. 1.45 (0.057)
H	Piston ring end gap	Max. 0.5 (0.02)
K	Con-rod small end bore	Max. 14.025 (0.552)
L	Crankshaft runout	Max. 0.05 (0.002)

## 1-6 Special tools



Key	Part Number	Description	Used for:
1	897801-33330	Tachometer PET-1000	Measuring engine speed to adjust carburettor
2	91004	Module air gap gauge	Adjusting pole shoe air gaps
3	895610-79920	L-hex wrench (4 mm)	Socket bolt (M5)
4	895611-79920	L-hex wrench (5 mm)	Socket bolt (M6)
5	897501-03938	Puller	Removing magnetor rotor
6	897537-30130	Piston stopper	Locking crankshaft rotation
7	897563-19830	Metering lever gauge	Measuring metering lever height on carburettor
8	897558-02830	T-socket wrench(8mm)	Removing and installing hex.bolt (M5)
9	897558-10230	T-socket wrench(10mm)	Removing and installing hex.bolt (M6)
10	897701-14732	Bearing tool	Removing and installing crankcase ball bearings
11	897702-30131	Piston pin tool	Removing and installing piston pin (Use 10 mm dia. adapter.)
12	897712-07930	2-pin wrench	Removing and installing pawl carrier
13	897719-02830	Piston holder	Making piston steady to remove and install piston/rings
14	897726-21430	Oil seal tool	Installing crankcase oil seal
15	897800-79931	Spark tester	Checking ignition system
16	897803-30131	Pressure tester	Testing carburettor and crankcase leakage
17	897826-16131	Rubber plug	Testing crankcase and cylinder leakage
18	897827-16131	Pressure plate	Testing crankcase and cylinder leakage
19	897834-79930	Rubber plug	Testing crankcase and cylinder leakage
20	897835-16131	Pressure connector	Testing crankcase and cylinder leakage
21	91007	Compression gauge	Measuring cylinder compression
22	91020	Limiter plug tool	Removing and installing plug

2 CARBURETTOR ADJUSTMENT PROCEDURE

2-1 General adjusting rules

- A. Before starting the unit for adjustment, check the following items.
1. The correct spark plug must be clean and properly gapped.
  2. The air filter element must be clean and properly installed.
  3. The muffler exhaust port must be clear of carbon.
  4. The fuel lines, tank vent and fuel filter are in good condition and clear of debris.
  5. The fuel is fresh ( > 89 octane : RON ) and properly mixed at 50 : 1 with “ISO L-EGD” or “JASO FC/FD” 2 stroke oil.
  6. All blower pipes are installed for proper engine loading.
- B. Start and run engine for 3 minutes alternating rpm between WOT for 50 seconds and idle for 10 seconds. Adjust idle speed screw to 2,600 +/- 200 r/min. If engine does not run correctly after this adjustment, proceed to the next step 2-2.

**IMPORTANT :** After adjusting carburettor according to the steps 2-2 and 2-3, the limiter plug(s) must be installed in Idle and hi speed (H) mixture needle(s) hole(s) to comply with Emission Directive.

2-2 Initial idle adjust screw, idle mixture needle and hi speed (H) mixture needle settings

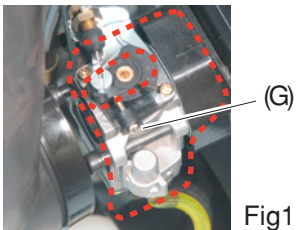
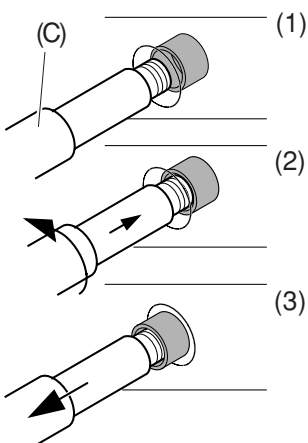
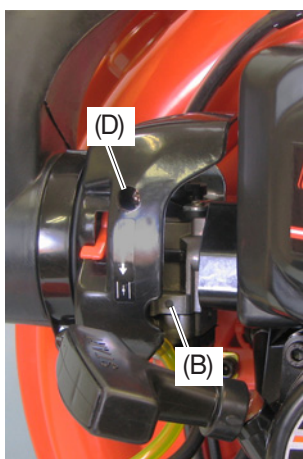
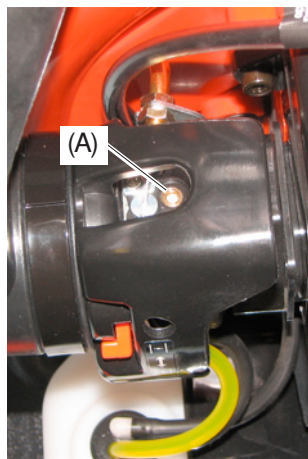


Fig1

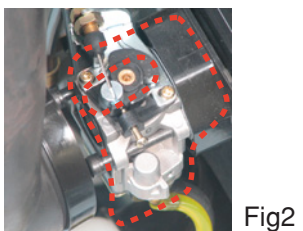


Fig2

1. Remove plugs from Idle mixture needle hole (A) and H mixture needle hole (B) using limiter plug tool (C) as follows.

- (1) Put limiter plug tool (C) on limiter plug in mixture needle hole.
- (2) Push and turn limiter plug tool anticlockwise 2 turns into limiter plug slowly.
- (3) Pull out limiter plug tool with the limiter plug from mixture needle hole.
- (4) Repeat plug removal procedure for the other mixture needle.

**NOTE :** When plug is damaged and left in the hole, use needle or pin-shaped tool to scrape.

2. Turn hi speed (H) mixture needle (B) clockwise until lightly seated. And then turn hi speed (H) mixture needle anticlockwise 3 3/4 turns.

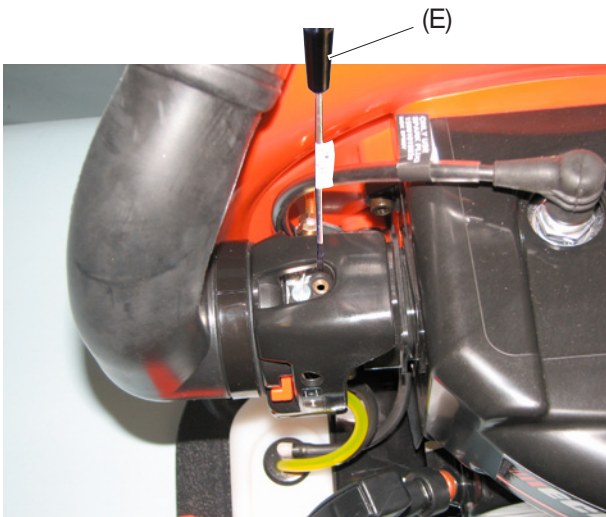
Turn idle mixture needle (A) anticlockwise completely out until a clicking sound is heard. Then turn it clockwise 10 turns from the point that the clicking sound is heard.

3. Turn idle adjust screw (D) clockwise until its head touches boss (G) as shown Fig 1. Then turn idle adjust screw (D) anticlockwise 8 turns from the point as shown Fig 2.

**NOTE :** Initial carburettor setting (Idle adjust screw, idle and hi speed (H) mixture needles) shown here is to start the engine after restoration or carburettor change. Idle adjust screw, idle and H mixture needles turn for designated engine revolution through procedures indicated here may vary. As long as idle and WOT engine speed is set in given range, the variance would be ignorable.



## 2-3 Adjusting carburettor



1. Start engine and warm it up alternating engine speed between WOT and idle every 10 seconds for 1 minute.

2. Adjust idle mixture needle with 2.5 mm blade screwdriver (E) to reach maximum engine speed just before drop off.

3. Set idle speed to 2,800 r/min by turning idle adjust screw. Engine speed ranges 2,800 +/- 30 r/min after idle adjust screw adjustment.

4. Turn idle mixture needle anticlockwise to reduce idle speed 200 to 300 r/min in the range of 2,500 to 2,600 r/min.

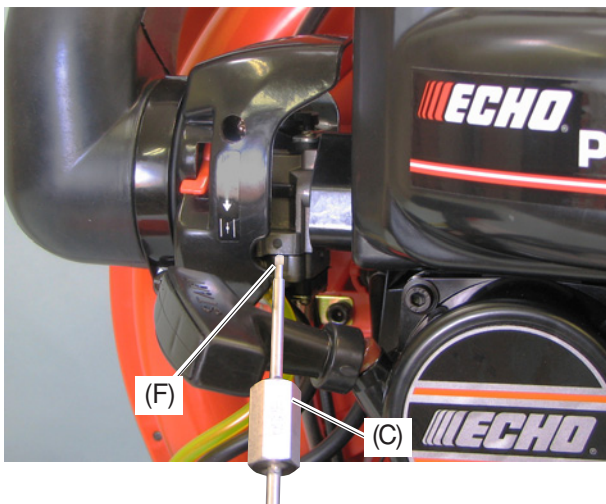
**NOTE :** Engine speed must be allowed to stabilize a minimum of 20 seconds after each adjustment of L mixture needle to assure accurate tachometer readings.

5. Adjust hi speed (H) mixture needle and obtain maximum WOT engine speed just before lean drop off using 2.5mm blade screwdriver.

6. Turn hi speed (H) mixture needle anticlockwise to reduce WOT engine speed 10-20 r/min. Minimum WOT engine speed after adjusting should be over 6,800 r/min.

7. Start engine, and verify engine idle speed ranges from 2,400 to 2,800 r/min, and WOT engine speed ranges from 6,800 to 7,300 r/min. When final adjustment is completed, the engine should idle, accelerate smoothly, and attain WOT per above specification.

8. After adjusting carburettor, insert and secure new plug(s) (F) A259-000000 deep in the needle holes per the Emission Directive using limiter plug tool (C).



**NOTE :** Engine WOT, and idle speed r/min in field operation may vary from final adjustment specifications due to changing ambient conditions, fuel, and engine loads. Safe engine rpm variances should be within the WOT, Idle speed ranges listed in Section 1-1, otherwise the carburetor should be readjusted.