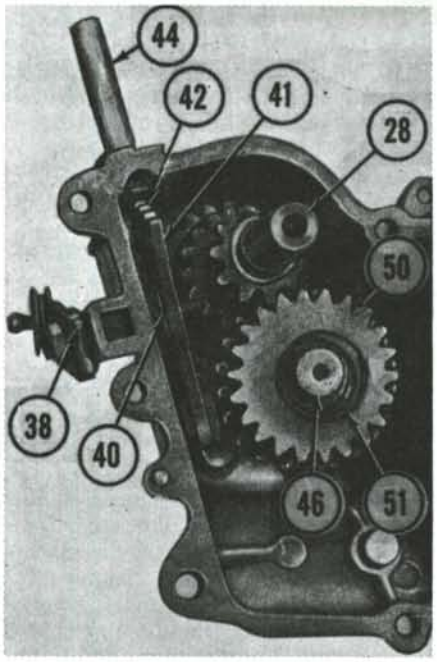

Fig. A2-8–View of transmission gears and shafts installed. Refer to Fig. A2-7 for legend.

the internal drive lugs bent in (toward the gear case). When adjusting the clutch spring nuts (17), tighten all nuts evenly until clutch does not slip. Springs can be adjusted through the small cover on right side cover after unit is assembled. Minimum clearance between adjuster nuts (17) and spring cups (15) is 0.06 inch as shown at (C—Fig. A2-6).

CRANKCASE AND GEAR BOX. To disassemble the crankcase and gear box, the engine must first be removed. Remove the cowling, cylinder head, cylinder, piston, flywheel clutch and crankshaft gear. Remove screws that attach crankcase halves together and carefully separate the halves. Dowel pins are installed between halves. Be careful not to damage sealing surfaces of crankcase. The transmission is shown in Fig. A2-7.

Use light grease to hold the 17 loose rollers in the bearing cages (45 & 54) when assembling. Before installing the kick starter pedal (24), turn the starter shaft counter-clockwise until gear contacts case as shown at (A—Fig. A2-9). Install starter lever on shaft so that distance (B) between lever and front of screw is ¼-½ inch, then hook return spring over lever.

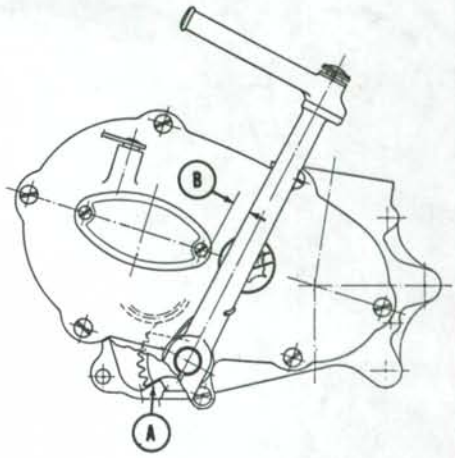

Fig. A2-9–Refer to text when installing the kick starter pedal.

BENELLI

125CC MODELS

MODEL	COBRA, CALIFORNIA & SCRAMBLER
Displacement—cc	123.6
Bore—MM	54
Stroke—MM	54
Oil-fuel ratio	1 to 20
Plug gap—MM	0.55
Inch	0.022
Point gap—MM	0.4
Inch	0.016
Ignition timing—Advance	Fixed
Degrees BTDC	29
Tire size—Front	2.75 x 18
Rear	3.00 x 18
Tire pressure—	
Front—kg/cm²	1.54
Psi	22
Rear—kg/cm²	1.96
Psi	28
Rear chain free play—inch.	½
Number of speeds	4
Weight—Lbs. (Approx.)	205

MAINTENANCE

SPARK PLUG. Spark plug electrode gap should be 0.022 inch. Standard spark plug is Beru 1348/2.

CARBURETOR. Del'Orto ME 18 BS carburetor is shown in Fig. BE1-1. Idle speed is adjusted at screw (7). Idle mixture needle (6) initial setting is 1 turn open. Turning the needle counter-clockwise leans the mixture. Clip (1) should be in center (2nd) notch of needle (3). Main jet (8) standard size is 76.

IGNITION AND ELECTRICAL. Ignition point gap can be checked and adjusted through slots in flywheel after the left side cover is removed. Point gap should be 0.016 inch (0.4MM). The flywheel and crankcase are marked to

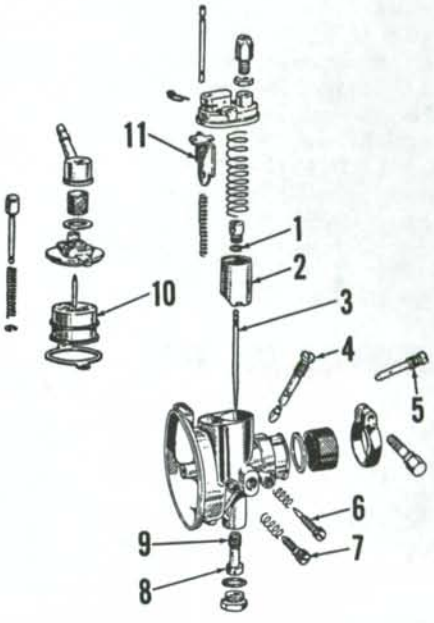

Fig. BE1-1–Exploded view of Del'Orto carburetor. Idle mixture is adjusted at needle (6).

1. Clip
2. Throttle slide
3. Valve needle
4. Pilot jet
5. Minimum jet
6. Idle mixture needle
7. Idle speed screw
8. Main jet
9. Nozzle
10. Float
11. Choke slide

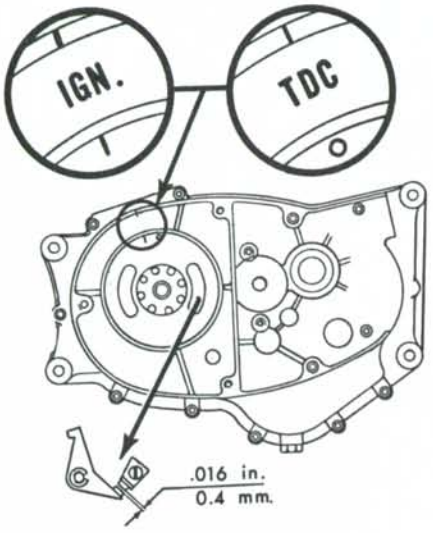

Fig. BE1-2–When notch on flywheel is aligned with notch on crankcase, crankshaft is positioned for correct ignition point. When "O" on flywheel is aligned with notch in crankcase, piston is at TDC.

indicate TDC and ignition timing (29 ° BTDC) as shown in Fig. BE1-2. Timing is changed by moving the magneto stator plate in the elongated mounting holes after removing the flywheel and loosening the three stator plate retaining screws. Ignition should occur (points just open) when the notched mark on flywheel is aligned with notch in crankcase. Flywheel rotates counter-clockwise.

LUBRICATION. The engine is lubricated by mixing two stroke motor oil with the fuel. Ratio should be 1:15 for the first 1,000 miles; 1:20 after 1,000 miles. The gear box is lubricated with 40 fl. oz. of SAE 30 motor oil. Gear box oil should be drained and refilled every 3,000 miles. Oil should be maintained between marks on filler plug dipstick at right rear of crankcase.

CLUTCH CONTROLS. The clutch cable should be adjusted to provide the hand lever with some free play. Adjustment can normally be accomplished at end of cable. Additional adjustment is possible by turning the adjusting screw (20—Fig. BE1-6) in clutch lever under the engine left side cover.

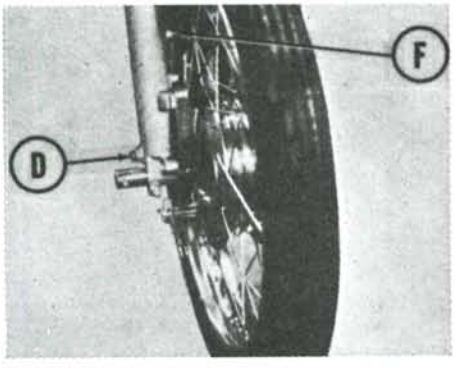

Fig. BE1-3–Oil in front forks is drained at screw (D). Oil should be maintained at level of filler screw hole (F).

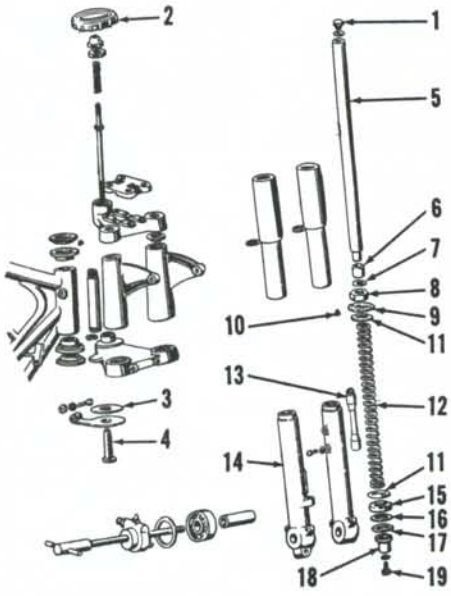

Fig. BE1-4–Exploded view of front suspension unit.

1. Top plug
2. Steering friction knob
3. Fiber washer
4. Friction nut
5. Tube
6. Bushing
7. Washer
8. Plug
9. Washer
10. Screw
11. Gaskets
12. Spring
13. Dampener
14. Lower sliding tube
15. Retainer
16. Washer
17. Oil seal
18. Bushing
19. Screw for dampener (13)

SUSPENSION. Each front suspension unit is drained at plug (D—Fig. BE1-3). Fill to the level of filler plug (F) with SAE 20 motor oil. Fluid in the front suspension should be checked every 1,000 miles and drained every 5,000 miles. The rear suspension units are available only as complete assembly and should be renewed if bent, leaking or otherwise damaged.

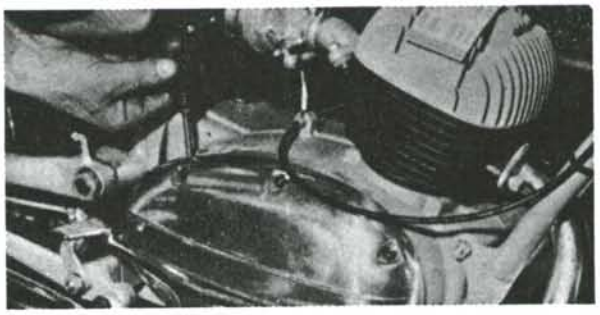

Fig. BE1-5–Oil level should be maintained between marks on dipstick attached to filler plug.

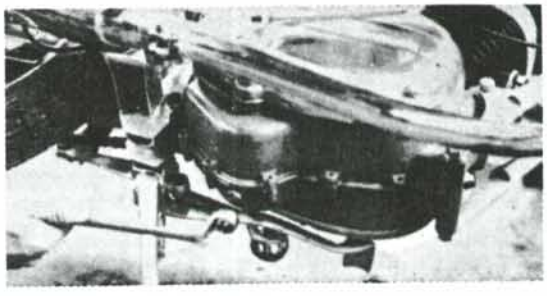

Fig. BE1-5A–View showing oil drain plug. Make certain that sealing washer is in good condition when replacing plug.

REPAIRS

PISTON, RINGS AND CYLINDER. The piston can be removed after removing fuel tank, exhaust pipe, carburetor, cylinder head and cylinder. Standard cylinder bore diameter is 54.0-54.015MM (2.165-2.166 in.). Piston to cylinder clearance should be 0.04-0.075MM (0.0016-0.003 inch) when measured at bottom of piston skirt at right angles to piston pin. Wear limit is 0.1MM (0.004 inch). Piston and rings are available in three oversizes. When installing piston, make certain that cut-away part of skirt is in toward rear (carburetor).

CONNECTING ROD AND CRANKSHAFT. The crankcase halves must be separated to remove the crankshaft. Connecting rod, crankpin and roller bearings are removed by pressing the crankshaft apart. Crankshaft should be disassembled **ONLY** if required tools are available to correctly check and align the reassembled crankshaft.

CLUTCH. The manual, multiple disc wet type clutch is mounted on the right end of the transmission input shaft as shown in Fig. BE1-6. The clutch is actuated by lever (21) on left side and rods (23 & 38) which go through center of the input shaft. The actuating block (39) is used as drive key and disengaging block. When reassembling, smooth side of pressure plate (47) should be toward retaining ring (48). Tighten nut (52) to 36 Ft.-Lbs. torque.

CRANKCASE AND GEAR BOX. To disassemble the crankcase and gear

box, the engine must be removed. Remove the cylinder head, cylinder, piston, magneto assembly, clutch and crankshaft drive gear. Remove the four nuts and eleven screws and separate the crankcase halves. Refer to Fig. BE1-6. When assembling, the gears and shaft can be assembled in the left half of crankcase and right half can be assembled over the shafts. The timing marks on selector shaft (14) gear and shift drum (77) gear must be aligned. Check alignment of timing marks after assembly through hole in right crankcase half.

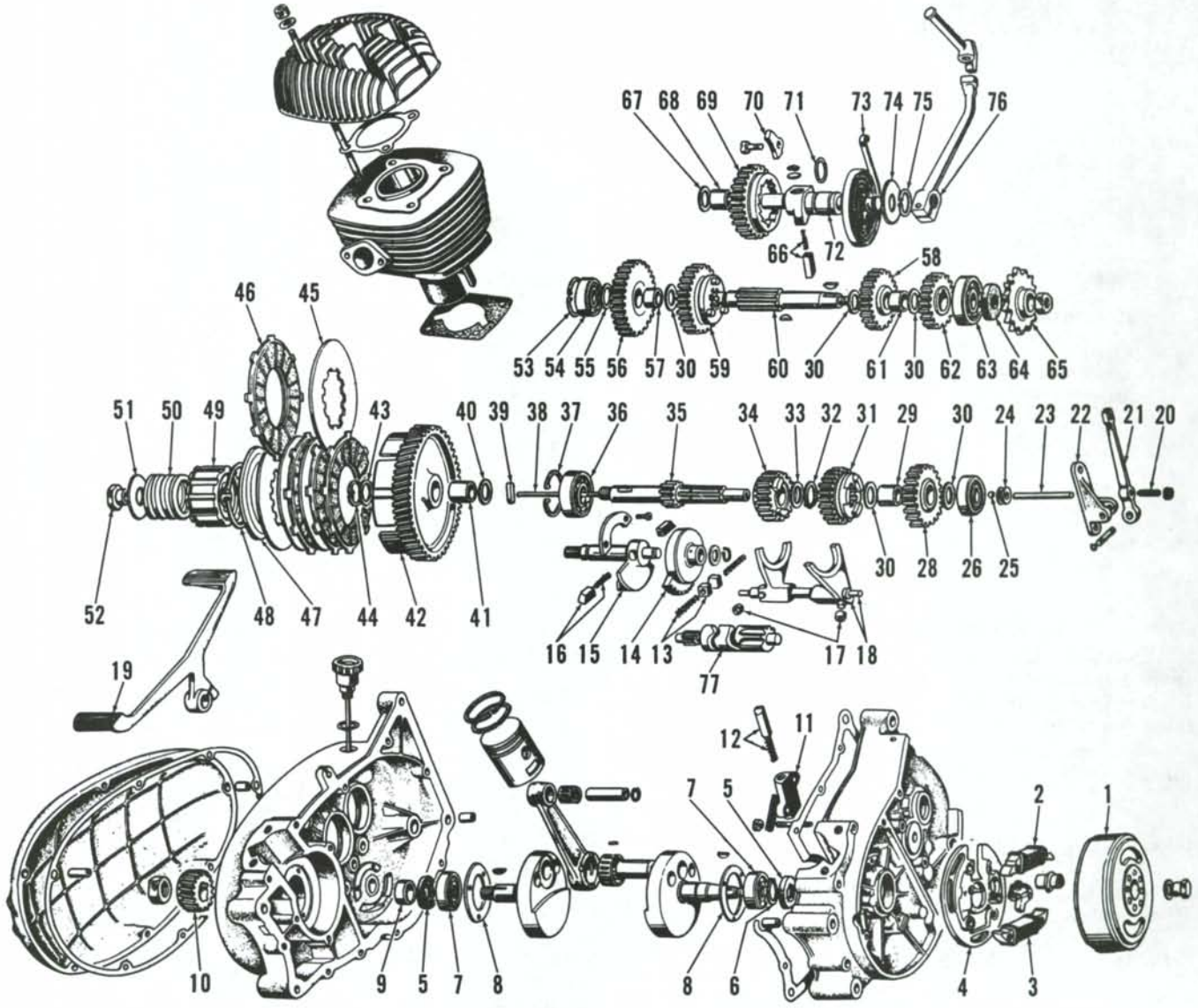

Fig. BE1-6–Exploded view of engine and transmission.

1. Flywheel
2. Ignition low tension coil
3. Lighting coil
4. Stator plate
5. Seals
6. Snap ring
7. Main bearings
8. Bearing retainers
9. Spacer
10. Crankshaft gear
11. Detent housing
12. Detent for shift drum
13. Centering springs & blocks
14. Preselector
15. Selector shaft
16. Ratchet pawls and spring
17. Shift fork rollers
18. Shift forks and rail
19. Shift pedal
20. Adjusting screw
21. Clutch lever
22. Bracket
23. Short rod
24. Oil seal
25. Ball
26. Bearing
28. Gear (4th)
29. Bushing
30. Washer
31. Sliding gear (3rd)
32. Snap ring
33. Washer
34. Gear (2nd)
35. Input shaft & gear (1st)
36. Bearing
37. Snap ring
38. Clutch rod
39. Actuating block
40. Thrust washer
41. Bushing
42. Clutch drum
43. Thrust washer
44. Snap ring
45. Steel driven plate
46. Friction disc
47. Pressure plate
48. Snap ring
49. Clutch hub
50. Spring
51. Washer
52. Nut
53. Snap ring
54. Bearing
55. Washer
56. Gear (1st)
57. Bushing
58. Gear (3rd)
59. Sliding gear (2nd)
60. Output shaft
61. Bushing
62. Gear (4th)
63. Bearing
64. Seal
65. Output sprocket
66. Kickstarter ratchet
67. Washer
68. Bushing
69. Kickstarter gear
70. Plate
71. "O" ring
72. Kickstarter shaft
73. Return spring
74. Washer
75. Snap ring
76. Lever
77. Shift drum