

Chapter 24D

TOP WHEELCASE, DISMANTLING

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THIS CHAPTER, which is applicable to both the Ghost 48 Mk. 1 and the Ghost 48 Mk. 2, contains instructions for dismantling the top wheelcase, starter gear, air compressor drive housing assembly, and (48 Mk. 2 only) the generator drive assembly, after they have been removed from the engine in accordance with the instructions given in chapter 23. The starter drive gear assembly is identical on both the 48 Mk. 1 and 48 Mk. 2 engines. The 48 Mk. 1 has a separate compressor gear housing, and the 48 Mk. 2 is provided with a detachable generator drive gear assembly; and, therefore, the remainder of this chapter deals separ-

ately with each Mark of engine. Fig. 4 and 12 illustrate respectively, the 48 Mk. 1 and the 48 Mk. 2 top wheelcase, and the figures in parenthesis given in the text relate to components in the appropriate illustration. To facilitate reassembly, all adjusting washers should be secured to their respective components. All ball, needle, and roller bearings should be wrapped in grease-proof paper. Small parts should be placed in a box marked with the engine number. The general information contained in chapter 22 should be referred to as necessary.

GHOST 48 Mk. 1 and 48 Mk. 2

STARTER DRIVE ASSEMBLY

Removing the planet gear assembly

1. Using four slave bolts, washers and nuts, assemble the top wheelcase to dismantling-and-build stand T.74978, Fig. 1.
2. Remove blanking cover T.74976 from the starter dog face.
3. Remove the two countersunk screws that secure the starter drive casing top cover and remove the cover.
4. Remove the plain nuts and spring washers which secure the six studs to the base of the starter drive gear casing and remove the complete starter gear from the top wheelcase.
5. Remove the eight securing set-screws and

separate the casing from the bottom cover; the cover will be removed complete with the starter dog and planet gear assembly.

The friction ring in the bottom cover is not to be treated as a seal and must not be removed on overhaul. Mod. 1132 introduced two steel dowel pins to lock this ring in position.

6. Withdraw the planet gear assembly and, using stud box T.70473 remove the six studs which secure the annulus gear to the casing.

Dismantling the planet gear assembly

1. Position the planet gear assembly in vice block T.74821, Fig. 2; turn down the tabs of the locking washers and remove the three planet gear carrier cover retaining bolts. Remove the

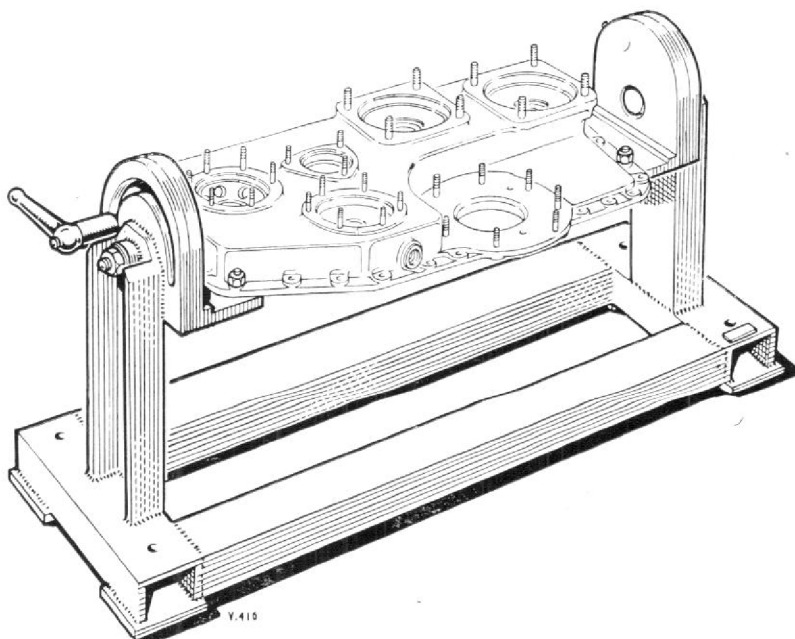


Fig. 1. Top wheelcase bolted to dismantling-and-rebuilding stand T.74978.

assembly from the vice block.

2. Position the split fixture T.74822 under the lip of the carrier cover and place the carrier on pot fixture T.74823, Fig. 3.
3. Pass adapter T.74824 through the bore of the carrier and press off complete with the ball bearing and bearing retaining circlip.
4. Remove the washers, planet gears, roller needles and spindles.
5. Pass the internal expanding extractor T.74825 through the bore of the sun gear and tighten the small nut on the extractor to expand the split collet at its location in the end of the sun gear. Tighten the larger nut on the extractor and withdraw the sun gear together

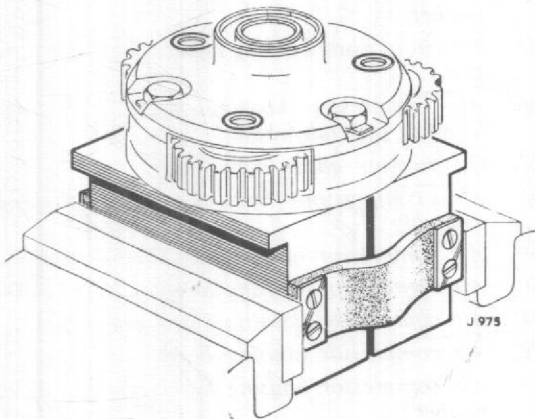


Fig. 2. Vice block T.74821, with planet gear assembly installed.

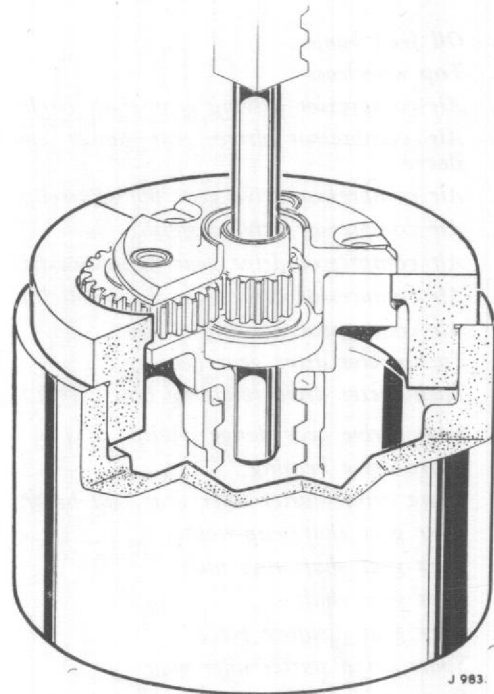


Fig. 3. Split bush T.74822 pot fixture T.74823, and adapter T.74824, for removing planet gear carrier cover.

with the ball bearing ; remove the circlip from the sun gear.

6. Position the split bush T.74826 under the ball bearing so that it locates on the inner race. Place the assembly, complete with split bush on pot fixture T.74827 ; using adapter T.74828 press out the sun gear.

GHOST 48 Mk. 1 TOP WHEELCASE

AIR COMPRESSOR DRIVE HOUSING ASSEMBLY

1. Remove the six plain nuts, spring and plain washers which secure the air compressor drive housing assembly (9) to the wheelcase and remove the assembly, Fig. 4.
2. Unscrew and remove the six plain nuts and spring washers which secure the compressor housing adapter (63) to the compressor housing assembly ; remove the adapter and laminum washer.
3. Using Seeger pliers, remove the Seeger circlips which secure the vertical and horizontal gears ; withdraw the gears and plain washers.
4. Unlock and remove the locking pegs and tab washers which secure the vertical and hori-

zontal gear bushes ; remove the bushes and their adjusting washers.

5. Remove the plain nuts, spring and plain washers which secure the remaining blanking covers ; remove the blanking covers.

REMOVING THE GEAR DRIVE ASSEMBLIES

Spare drive

1. Remove the circlip from the upper end of the double spare drive gear (25) shank and withdraw the gear.
2. Unlock and remove the four plain $\frac{1}{4}$ in. B.S.F. nuts, tab washers and special bolts

KEY TO FIG. 4

1. Oil feed banjo
2. Top wheelcase
3. Air compressor driving gear shaft circlip
4. Air compressor drive gear flange splined sleeve
5. Air compressor drive gear flange circlip
6. Air compressor driving shaft
7. Air compressor drive gear flange washer
8. Air compressor drive gear flange circlip
9. Air compressor housing
10. Tachometer drive gear bearing
11. Tachometer drive retaining bolt
12. Spare drive gear flange circlip
13. Spare drive bearing
14. Spare drive/starter idler gear ball bearing
15. Idler gear shaft cup-washer
16. Idler gear shaft ring nut
17. Idler gear shaft
18. Idler gear distance piece
19. Spare drive/starter idler gear
20. Spare drive gear tab-washer
21. Spare drive gear nut
22. Spare drive gear bolt
23. Spare drive gear flange
24. Spare drive small gear
25. Spare drive large gear
26. Tachometer drive small gear
27. Tachometer drive retaining nut
28. Tachometer drive retaining nut tab-washer
29. Tachometer drive gear bolt
30. Tachometer drive gear nut
31. Tachometer drive gear nut tab-washer
32. Tachometer drive gear flange
33. Tachometer drive large gear
34. Air compressor driving shaft
35. Air compressor drive gear bearing
36. Air compressor drive gear retaining bolt
37. Air compressor drive gear retaining nut
38. Air compressor drive gear retaining bolt tab-washer
39. Air compressor drive gear flange
40. Air compressor drive gear
41. Starter casing/top cover, joint washer
42. Starter casing/top cover
43. Planet gear
44. Planet gear spindle
45. Planet gear carrier cover
46. Planet gear washer
47. Sun gear
48. Sun gear ball bearing washer
49. Sun gear ball bearing
50. Planet gear carrier bolt
51. Planet gear carrier tab-washer
52. Starter drive annulus gear
53. Starter casing
54. Adjusting washer
55. Starter/generator idler gear shaft
56. Starter/generator idler gear distance piece
57. Idler gear bearing
58. Idler gear retaining bolt
59. Generator drive distance piece
60. Generator driving gear circlip
61. Generator driving gear
62. Generator driving gear bearing
63. Air compressor housing adapter
64. Air compressor housing adapter adjusting washer
65. Air compressor housing adapter bush locating peg
66. Air compressor housing bevel gear bush locating peg tab-washer
67. Oil pressure gauge connection
68. Air compressor housing oil filler cap assembly
69. Air compressor housing oil filler assembly
70. Air compressor housing adapter bush
71. Air compressor housing bevel gear circlip
72. Air compressor housing bevel gear bush
73. Air compressor housing bevel gear adjusting washer
74. Air compressor housing bevel gear circlip
75. Air compressor housing bevel gear washer
76. Air compressor housing bevel gear
77. Air compressor housing bevel gear bush locating peg
78. Generator idler gear retaining bolt washer
79. Generator idler gear retaining bolt washer
80. Generator idler gear retaining bolt split pin
81. Generator idler gear retaining bolt nut
82. Generator idler gear
83. Starter/generator idler gear ball bearing
84. Starter/generator idler gear ring nut
85. Starter/generator idler gear cup-washer
86. Starter/generator idler gear
87. Sun gear ball bearing circlip
88. Starter dog retaining nut
89. Starter dog
90. Planet gear carrier
91. Starter dog seal circlip
92. Starter dog seal
93. Bottom cover and bearing assembly
94. Planet gear needle bearings
95. Generator driving gear

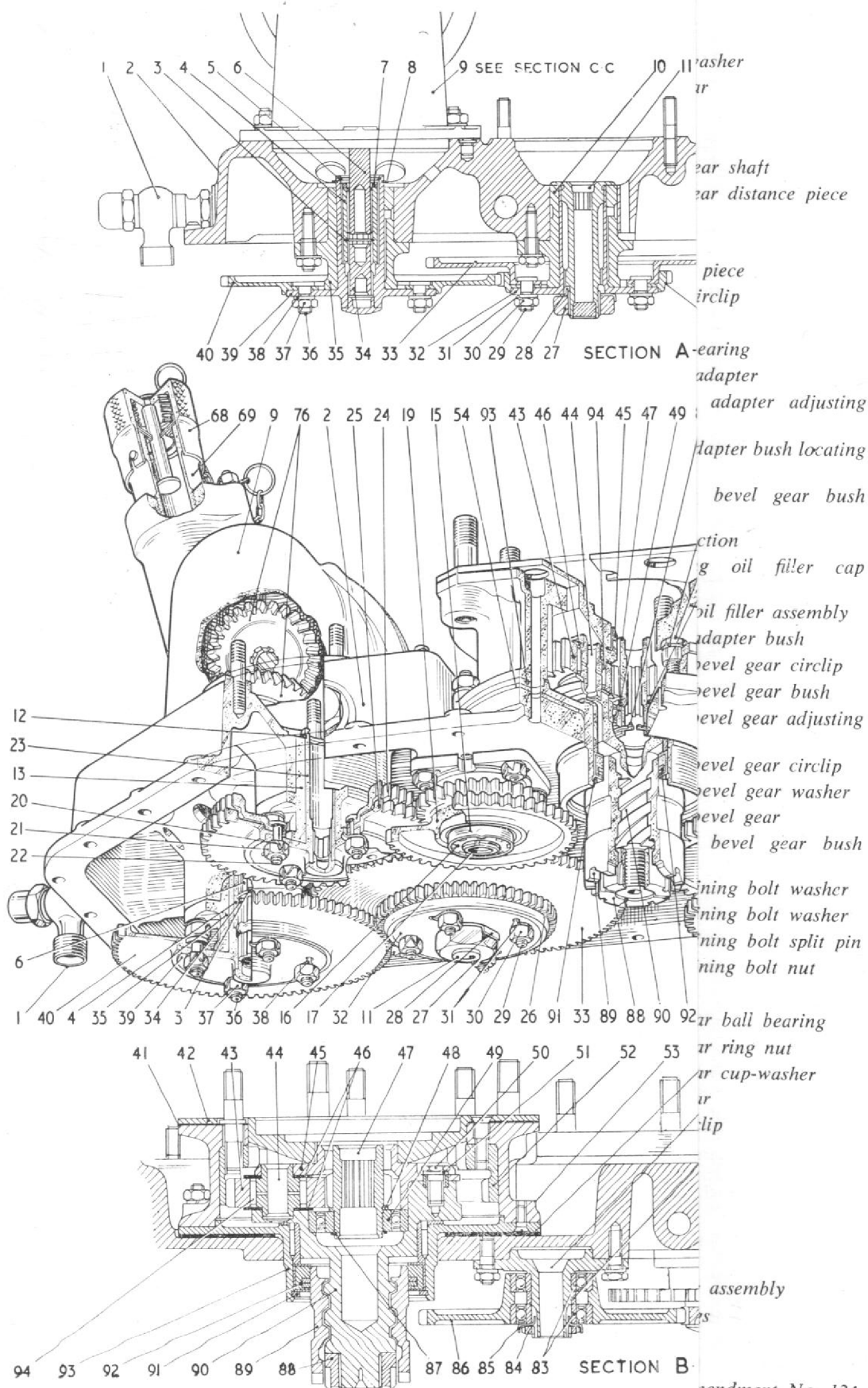
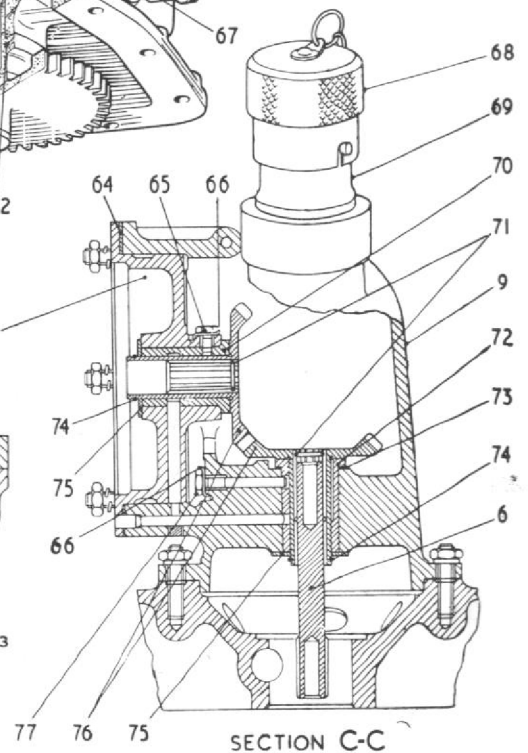
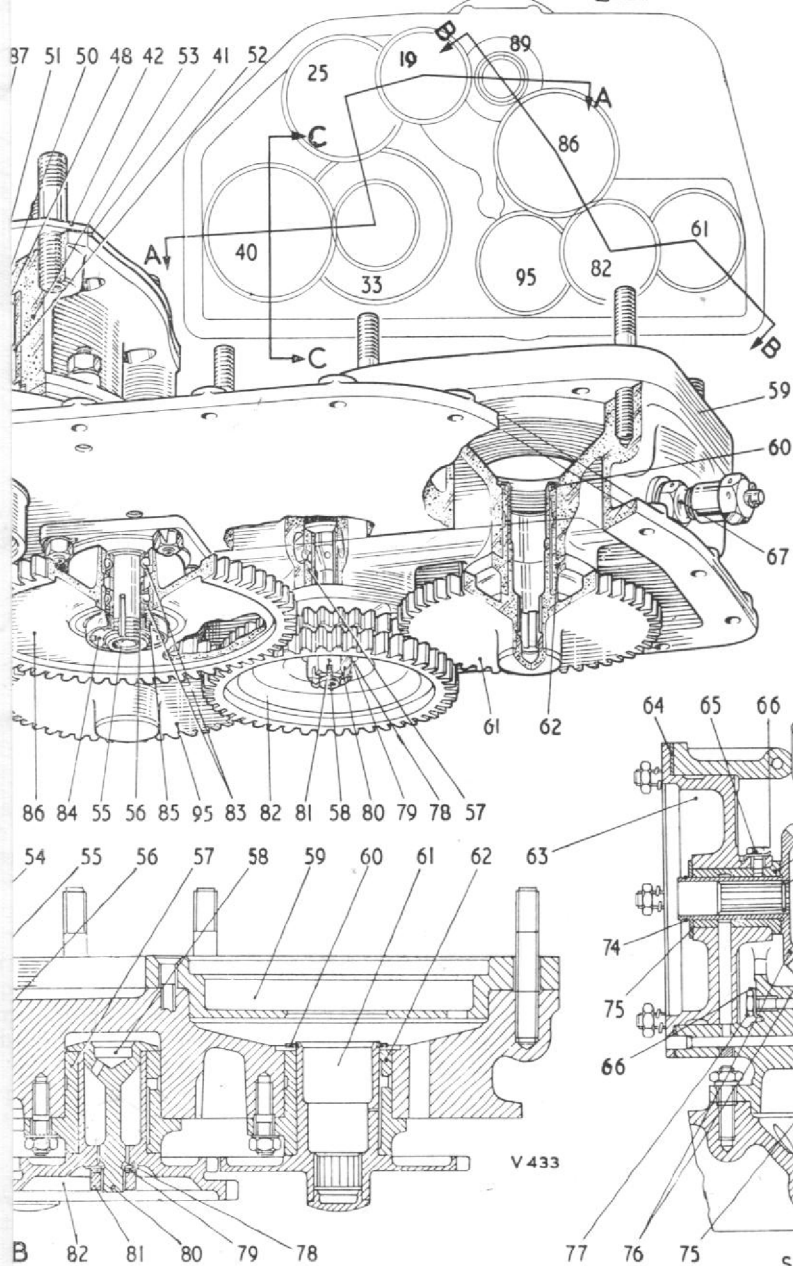
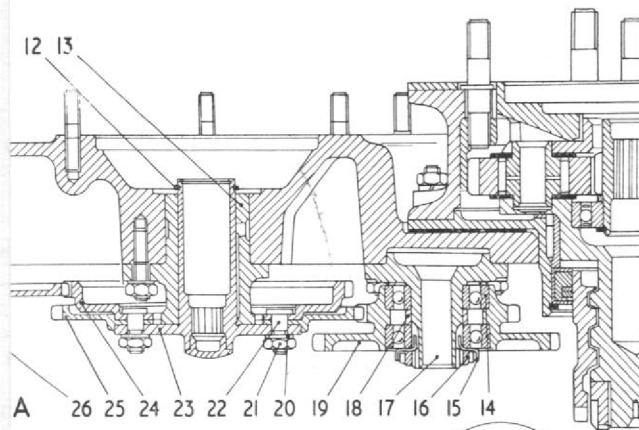


Fig. 4. Ghost 48 Mk. 1 top wheelcase arrangement.



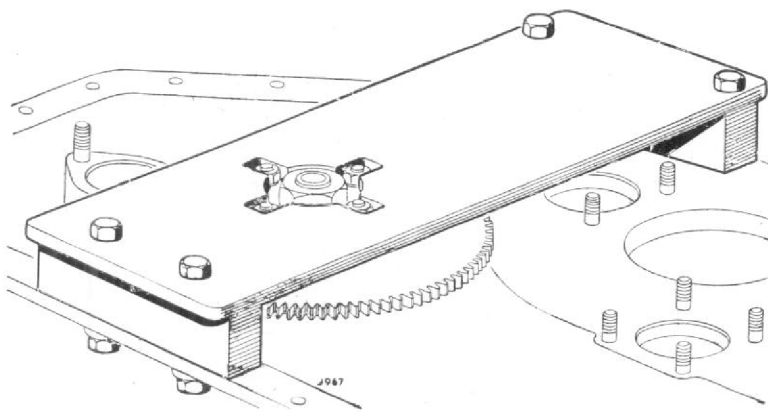


Fig. 5. Tachometer drive gear locking plate T.75555.

which secure the two gears together; separate the gears.

Air compressor drive

1. Remove the internal sleeve and quill shaft from the bore of the air compressor drive gear (40).
2. Unlock and remove the four plain $\frac{1}{4}$ in. B.S.F. nuts, tab washers and special bolts which secure the two gears together; separate the gears.

Tachometer drive

1. Assemble locking plate T.75555 to the wheelcase with its cruciform slots located over the four nuts of the tachometer gear (26 and 33) and secure it in position with the four special bolts and nuts, Fig. 5.
2. Unlock and remove the plain nut and tab washer which secures the centre retaining bolt. Withdraw the retaining bolt and the gears.
3. Unlock and remove the four plain $\frac{1}{4}$ in. B.S.F. nuts, tab washers and special bolts which secure the two gears together; separate the gears.

Generator idler gear

1. Turn down the tabs of the locking washers and remove the two plain nuts and tab washers which secure the generator idler gear (82) bearing inside the top wheelcase. Remove the gear assembly complete.
2. Position the gear assembly in vice block T.74819; remove the retaining bolt split pin, and castellated nut from the centre bolt. Withdraw the centre bolt and double gear; tie all the loose parts together.

Generator and alternator drives

1. Remove the two countersunk screws which secure the square flanged generator drive

distance piece to the upper side of the top wheelcase. Remove the distance piece and the sealing ring.

2. Using Seeger pliers remove the Seeger circlips from the generator driving gear (95) shank. Withdraw the gear and remove the internal circlip, plain washer, splined sleeve and quill shaft from the bore of the gear (61).

3. Using the same sequence of operations, dismantle the alternator drive gear assembly.

Spare drive/starter idler (19)

1. Open up the cup locking washer. Use spanner T.73026 to remove the ring nut and remove the cup locking washer.
2. Unlock and remove the four $\frac{1}{4}$ in. B.S.F. nuts and tab washers which secure the gear spindle and remove the spindle.
3. Position split bush T.74774 between the double idler gear and the flange of the gear spindle. Place the assembly with the split bush in position, on pot fixture T.74775. Use adapter T.74777 to press out the spindle, Fig. 6.
4. Place the double idler gear on pot fixture T.74776; pass expanding extractor T.74778 through the bore of the first ball bearing so that it locates in the bore of the second ball bearing. Tighten the centre nut of the extractor to expand the collet in the bore, thus gripping the bearing inner race; press out the bearing, Fig. 7.
5. Remove the distance piece and reverse the

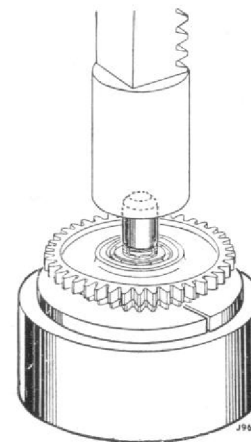


Fig. 6.

Split bush T.74774, pot fixture T.74775, and adapter T.74777, for removing idler gear spindle.

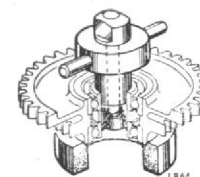


Fig. 7.

Pot fixture T.74776 and extractor T.74778, for pressing out lower ball bearing.

gear assembly on the pot fixture ; using adapter T.74779, press out the second ball bearing. Tie all loose parts to the spindle.

Starter/generator idler

1. To dismantle the starter/generator idler single gear assembly (86) using split bush T.74780 in place of T.74774, proceed as for the spare drive/starter idler described above. Tie all loose parts to the gear spindle.

REMOVING THE PLAIN BEARINGS

1. Unlock and remove the two plain $\frac{1}{4}$ in. B.S.F. nuts and tab washers which secure each of the following bearings:—

Spare drive	(13)
Air compressor drive	(35)
Tachometer drive	(10)
Generator drive	(95)
Alternator drive	(61)
2. Remove the bearings and place them in a box marked with the engine number.

MISCELLANEOUS

1. Cut the wire locking all the hexagonal blank plugs (introduced by mod. 1097) and

remove the plugs and washers.

2. Unscrew and remove the cap nut which secures the oil feed banjo to the starboard side of the wheelcase, adjacent to the air compressor drive; remove the banjo, the two washers, and the banjo pillar.
3. Remove the oil pressure gauge union adapter which is situated on the port side of the wheelcase adjacent to the alternator driving gear location; remove the joint washer.
4. Unscrew and remove the cap nut which secures the hydraulic pump oil feed banjo to the banjo pillar screwed into the oil gallery. Remove the banjo, the two washers, and the banjo pillar.
5. Clamp the compressor housing in vice block T.74801 and secure the vice block in a bench vice.
6. Using spanner T.74803 remove the oil filler; remove the vice block from the vice and the compressor housing from the vice block.
7. Remove the wheelcase from the dismantling-and-assembly stand.

GHOST 48 Mk. 2 TOP WHEELCASE

STARTER DRIVE ASSEMBLY

1. Bolt hydraclamp (type H.S.S.A.) to a suitable bench.
2. Using two set-screws, secure adapter T.78397 to the hydraclamp.

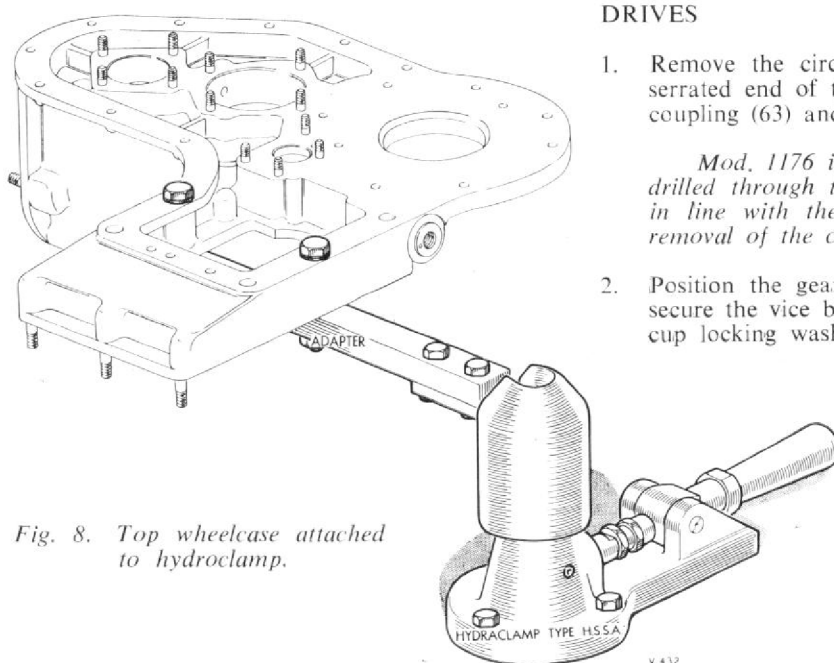


Fig. 8. Top wheelcase attached to hydroclamp.

3. Using two slave bolts and nuts, secure the wheelcase to the adapter, Fig. 8.
4. Remove and dismantle the planet gear assembly, applying the same sequence of operations given on page 2.

PORT AND STARBOARD GENERATOR DRIVES

1. Remove the circlip from the groove in the serrated end of the gear; withdraw the drive coupling (63) and the driving shaft (56).

Mod. 1176 introduced a $\frac{1}{16}$ in. dia. hole, drilled through the shaft of each drive gear in line with the circlip groove to facilitate removal of the circlip.

2. Position the gear on vice block T.77228 and secure the vice block in a vice. Open up the cup locking washer and use spanner T.72554 to remove the ring nut; remove the cup locking washer and the bearing washer.
3. Unlock and remove the four plain $\frac{1}{4}$ in. B.S.F. nuts and tab washers which secure the ball bearing retaining plate in position; remove the retaining plate.

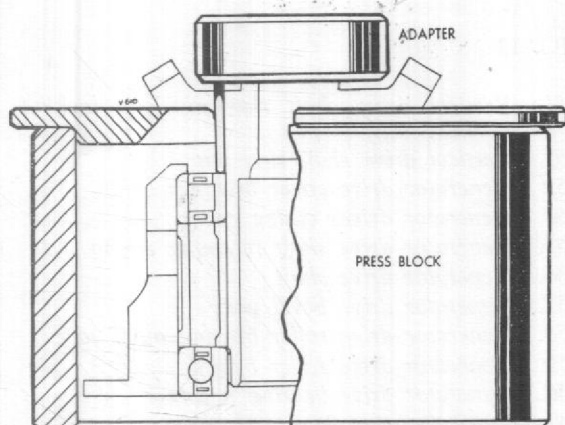


Fig. 9. Press block T.77681 and three-pin adapter T.77682 for partly removing housing and bearings from port generator drive gear.

4. Remove the assembly from the vice block and place it on press block T.77681 with the bevel gear uppermost; using three-pin adapter T.77682 press off the housing, complete with the ball and roller bearing, to the limit of the pin length, Fig. 9. Remove the assembly from the press block.
5. Assemble split bush of press block group T.77683 around the gear in the gap between the gear and the housing; place the assembly, gear downwards, on the press block and using adapter T.77684, press the gear clear of the housing, Fig. 10.
6. Place the housing on press block T.77683 and use adapter T.77686 to press out both bearings and spacers, Fig. 11.
7. Repeat the above instructions to dismantle the starboard generator gear assembly.

GENERATOR DRIVE CASING

Miscellaneous details

1. Cut the wire locking the breather banjo cap on the top cover. Remove the cap nut, two washers and the banjo from the banjo pillar; unlock and remove the banjo pillar with its tab washer.
2. Cut the wire locking the oil feed union to the generator casing and remove the union and joint washer.
3. Remove the eight plain $\frac{1}{4}$ in. B.S.F. nuts, spring and plain washers which secure the top cover to the generator gear casing; remove the top cover.

Two locking tabs replace two of the plain washers and these accommodate locking wire from the breather banjo in the top cover and the oil feed union in the generator casing.

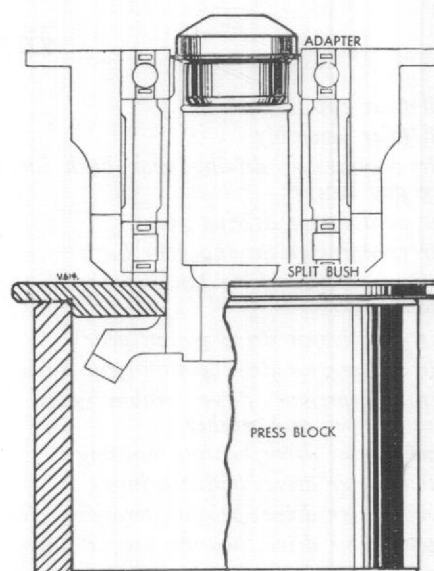


Fig. 10. Press block group T.77683 and adapter T.77684 for pressing port generator drive gear clear of the housing.

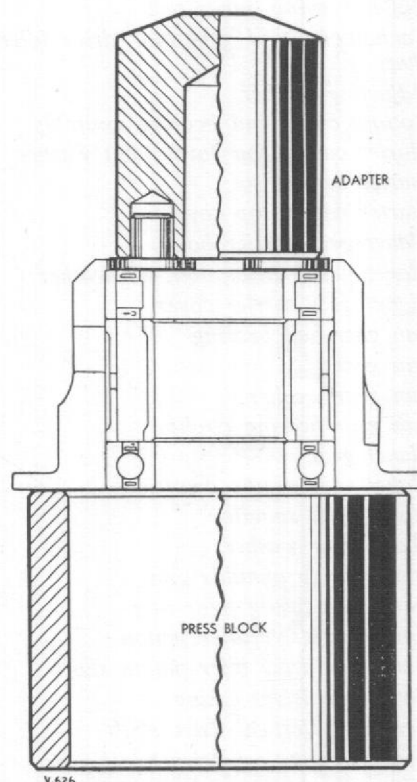


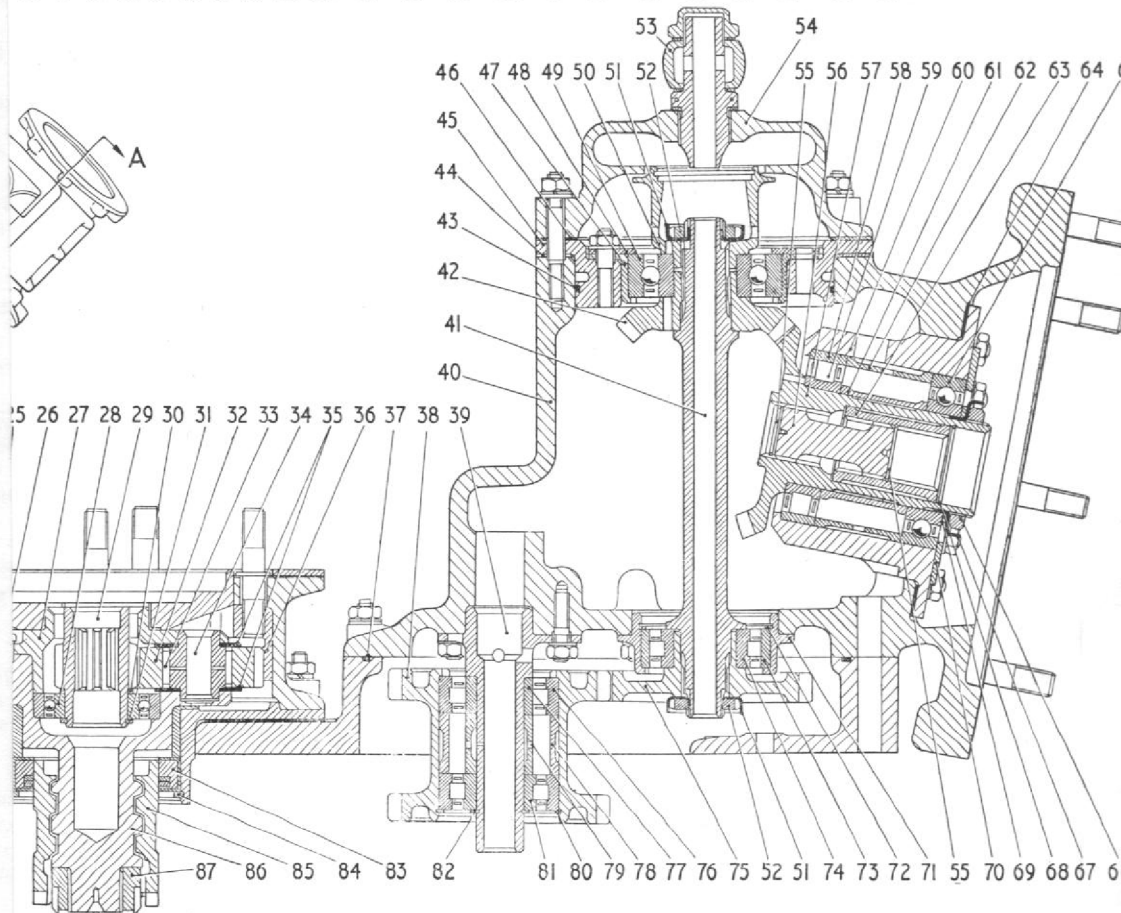
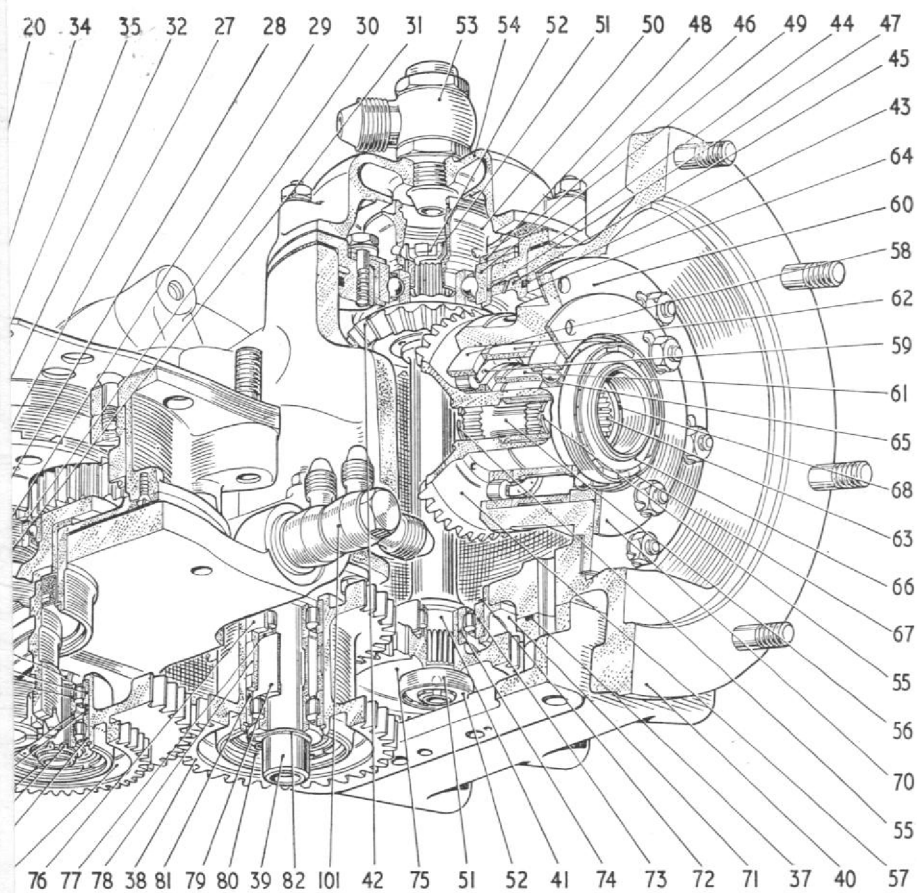
Fig. 11. Press block T.77683 and adapter T.77686 for pressing out bearings and spacers.

Idler gear

1. Remove the circlip from the gear spindle (39) and the bearing retaining ring from the bore of the idler gear (38).
2. Place the centre-screw pad spigot of extractor

KEY TO FIG. 12

1. Oil filler cap
2. Oil filler assembly
3. Air compressor driving gear bush locating peg and washer
4. Air compressor driving gear
5. Air compressor driving gear bush
6. Air compressor drive housing breather plug and washer
7. Air compressor drive pinion gear
8. Air compressor drive pinion gear bush
9. Air compressor drive pinion gear bush locating peg and washer
10. Tachometer drive bearing housing
11. Tachometer drive, ball bearings
12. Tachometer drive, bearing retaining circlip
13. Tachometer drive, bearing spacer ring
14. Tachometer drive, bearing retaining rings
15. Tachometer and generator drive idler gear
16. Locating roller bearing
17. Roller bearing
18. Roller bearing, inner race
19. Tachometer and generator drive idler gear shaft
20. Adjusting washer
21. Bottom cover and bearing assembly
22. Starter casing/top cover joint washer
23. Starter casing
24. Starter casing top cover
25. Planet gear carrier bolt
26. Planet gear carrier bolt, tab-washer
27. Planet gear carrier cover
28. Sun gear ball bearing
29. Sun gear
30. Sun gear washer
31. Sun gear bearing circlip
32. Planet gear
33. Planet gear needle bearing
34. Planet gear spindle
35. Planet gear washers
36. Starter drive annulus gear
37. Generator casing joint ring
38. Generator drive idler pinion
39. Generator drive idler pinion shaft
40. Generator drives casing
41. Generator vertical drive shaft
42. Generator vertical drive bevel gear
43. Generator drive top bearing housing seal
44. Generator drive adjusting washer
45. Generator drive vertical shaft housing
46. Generator drive cover gasket
47. Generator drive vertical shaft top bearing housing
48. Generator drive top bearing retaining cover
49. Generator drive vertical shaft top ball bearing
50. Breather separating chamber
51. Vertical drive shaft ring nut cup locking washer
52. Vertical drive shaft ring nut
53. Generator drive cover breather banjo
54. Generator drives casing cover
55. Generator drive shaft retaining circlip
56. Generator drive shaft
57. Generator drive bevel gear
58. Generator drive roller bearing outer race
59. Generator drive roller bearing
60. Generator drive bearing housing
61. Inner distance piece
62. Outer distance piece
63. Generator drive coupling
64. Generator gears adjusting washer
65. Generator drive ball bearing
66. Generator drive bevel gear ring nut
67. Generator drive bevel gear ring nut cup-locking washer
68. Generator drive coupling retaining circlip
69. Bearing washer
70. Bearing retaining plate
71. Generator drive bottom bearing housing
72. Bearing retaining ring
73. Generator drive bottom bearing outer race
74. Generator drive bottom bearing
75. Generator drive gear
76. Top roller bearing
77. Top roller bearing inner race
78. Outer bearing spacer
79. Inner bearing spacer
80. Bearing retaining ring
81. Bottom roller bearing
82. Bearing retaining circlip
83. Starter dog seal assembly
84. Starter dog seal assembly circlip
85. Starter dog
86. Planet gear carrier
87. Starter dog retaining nut
88. Bearing outer spacer
89. Bearing inner spacer
90. Bearing retaining circlip
91. Bearing retaining ring
92. Tachometer drive gear assembly
93. Air compressor drive pinion adjusting washer
94. Air compressor drive bearing housing
95. Top wheelcase
96. Air compressor drive gear
97. Adjusting washer
98. Air compressor adapter
99. Air compressor driving gear retaining circlip washer
100. Air compressor driving gear retaining circlip
101. Oil supply banjos
102. Oil feed banjo to compressor housing
103. Oil pressure gauge connection



SECTION A-A

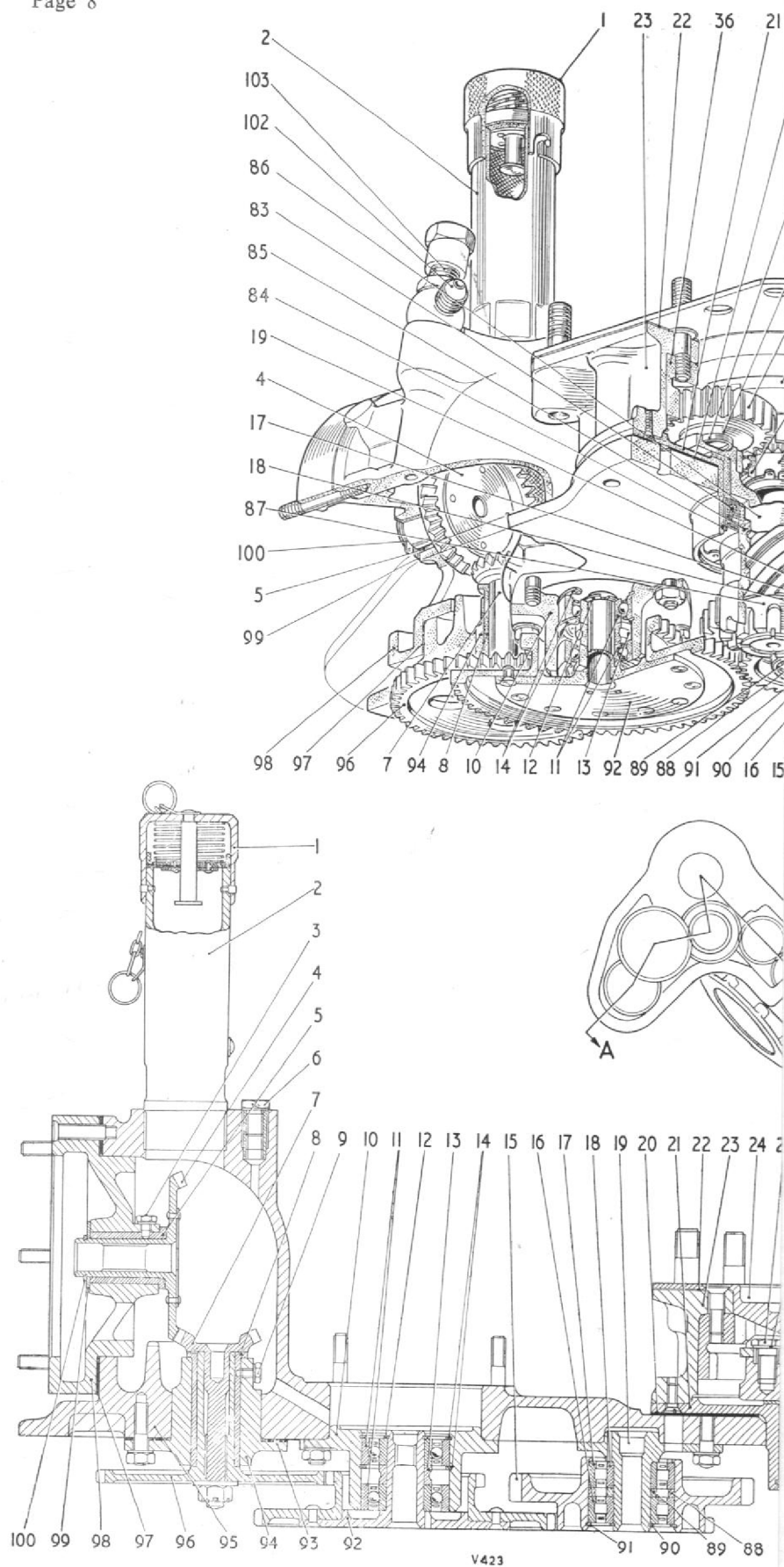


Fig. 12. Ghost 48 Mk. 2 top wheelcase arrangement.

T.77677 in the bore of the gear spindle and engage the three claws under the outer gear web clear of the teeth, Fig. 13. Turn the tommy bar of the extractor in a clockwise direction and draw the idler gear, outer roller bearing, spacers and inner roller race off the gear spindle.

3. Adjust extractor T.77680 so that the centre-screw pad spigot fits in the bore of the gear spindle and the two claws engage under the inner race of the inner roller bearing left on the spindle at the completion of Op. 2. Turn the tommy bar in a clockwise direction and draw off the race.

Vertical drive shaft and gears

1. Position locking fixture T.77199 to the bottom drive spur gear; using slave nuts, secure the bridge of the fixture to the generator casing; the nuts are located inside the casing.
2. Open up the cup locking washers (51) at both ends of the vertical drive shaft (41); using spanner T.77272 remove both ring nuts (52); remove the two cup locking washers.
3. Remove the two slave nuts inside the casing and the locking fixture.
4. Place the three support legs of extractor T.77690 on the top ball bearing housing; adjust the centre screw until the three claws of the extractor are positioned under the flange of the oil separating breather chamber. Turn the tommy bar anti-clockwise and draw the breather chamber off the vertical shaft, Fig. 14.
5. Using a hammer and soft metal drift, tap the upper end of the vertical shaft through the oil separating breather chamber and the ball bearing. From the bottom of the generator casing remove the vertical shaft with the spur gear and the lower, inner, roller race in posi-

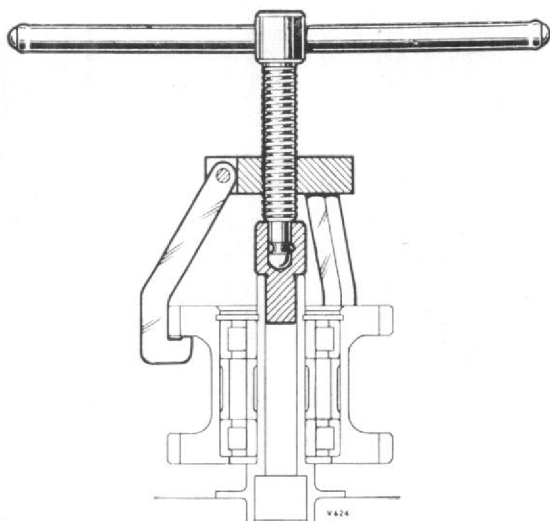


Fig. 13. Extractor T.77677 for removing the idler gear, outer roller bearing, spacers, and inner roller race off the gear.

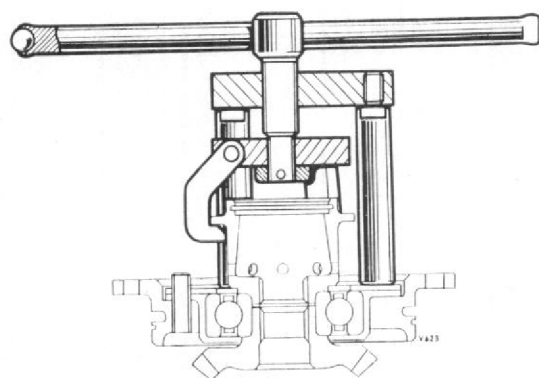


Fig. 14. Extractor T.77690 for removing the oil separating breather chamber.

tion on the spur gear shank.

6. Remove the spur gear from the vertical shaft together with the inner roller race.
7. Use claw extractor T.77687 to remove the inner roller race from the spur gear shank.
8. Remove the lower vertical drive bearing housing retaining ring.
9. Unlock and remove the four plain $\frac{1}{4}$ in. B.S.F. nuts and tab washers which secure the bearing housing to the bottom wheelcase; remove the housing.
10. Position the housing on press block T.77688 and using adapter T.77689, press the outer roller race out of the housing.
11. Unlock and remove the four plain $\frac{1}{4}$ in. B.S.F. nuts and tab washers which secure the upper ball bearing housing.
12. Remove the bevel gear, ball bearing, and the housings from the wheelcase; remove the adjusting washer.
13. Place the gear, bevel uppermost, on press block T.77691 and using three-pin adapter T.77692, press out the bearing and its housing.
14. Position the flange of the ball bearing housing on press block T.77693 and using adapter T.77694, press the ball bearing out of the housing.

MISCELLANEOUS DETAILS

1. Position the wheelcase so that the air compressor housing is uppermost.
2. Disconnect the split rings from each end of the oil filler and remove the oil filler cap and chain.
3. After removing slave nuts, washers and dis-

tance pieces where applicable, remove the following blanks :—

Part No.	Description
T.77216 ..	Generator housing face
19138/3 ..	Tachometer drive face
49237 ..	Compressor drive face

4. Remove the two set-screws which secure the adapter to the air compressor housing; remove the adapter and the adjusting washer and tie the adjusting washer to the adapter.
5. Turn the wheelcase through 180 deg. and remove the four slave nuts which secure blanking cover T.77215 to the bottom face of the wheelcase. Remove the blanking cover.

REMOVING AND DISMANTLING THE GEAR ASSEMBLIES

Removing the air compressor and tachometer gear assemblies

1. Unlock and remove the eight $\frac{1}{4}$ in. B.S.F. nuts and tab washers which secure the compressor and tachometer drive gear assembly (96 and 92).
2. Remove the two assemblies simultaneously.
3. Unlock and remove the four $\frac{1}{4}$ in. plain B.S.F. nuts and tab washers which secure the idler gear assembly (19).

Dismantling the compressor drive gears

1. Using Seeger pliers remove the retaining circlip and washer from the compressor gear assembled to the compressor drive adapter and withdraw the gear.
2. Unlock and remove the locating peg and tab washer which secures the compressor gear bush to the adapter; remove the bush.
3. Unlock and remove the four plain $\frac{1}{4}$ in. B.S.F. nuts and tab washers which secure the com-

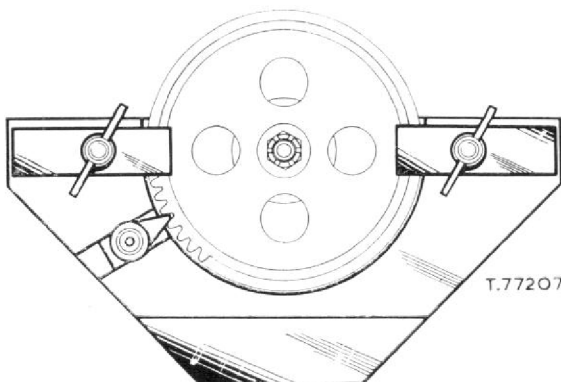


Fig. 15. Vice block T.77207 for facilitating removal of split pin and slotted nut from air compressor drive.

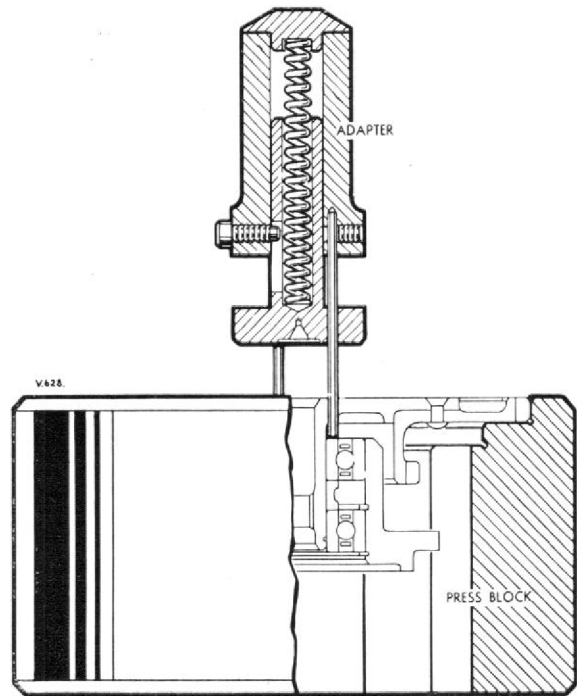


Fig. 16. Press block T.77660 and three-pin adapter T.77661 for pressing off bearings and housing from tachometer gear.

pressor drive (96) to the compressor drive housing (94).

4. Secure vice block T.77207 in a vice and clamp the compressor drive gear in it, (Fig. 15). Withdraw the split pin and remove the slotted nut and plain washer from the bevel gear extension.
5. Remove the gear from the vice block and separate the gears. The spur drive gear is internally splined to accommodate the splined male extension of the bevel gear.
6. Unlock and remove the locating peg and tab washer which secure the bush; remove the bush.

Dismantling the tachometer drive gear (92)

1. Using Seeger pliers remove the circlip from the tachometer gear shank.
2. Position the assembly, small gear downwards, on press block T.77660 and using three-pin adapter T.77661, press off the housing and the two ball bearings, Fig. 16.
3. Place the housing and the two ball bearings on pot fixture T.77662 flange uppermost.
4. Pass the collet of expanding adapter T.77663 through the bore of the nearest ball bearing and locate it inside the bore of the second one; utilising the centre bolt, expand the collet. Press the bearing out of the housing, Fig. 17.
5. Remove the two retaining rings and spacer

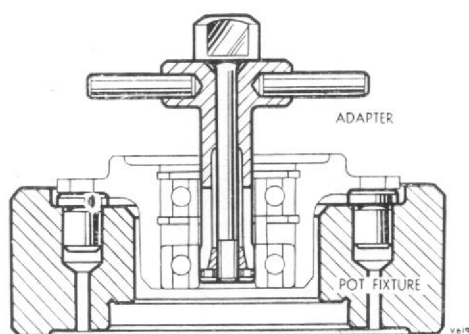


Fig. 17. Pot fixture T.77662 and adapter T.77663 for pressing out second ball bearing from tachometer drive gear housing.

from the housing. Reverse the housing on the press block and using adapter T.77221, press out the remaining ball bearing, Fig. 18.

Dismantling the idler gear

1. Using Seeger pliers remove the circlip from the idler gear spindle (15).
2. Position the assembly, large gear uppermost, on press block T.77718 and using adapter T.77661, press the gear and roller bearings of the spindle.

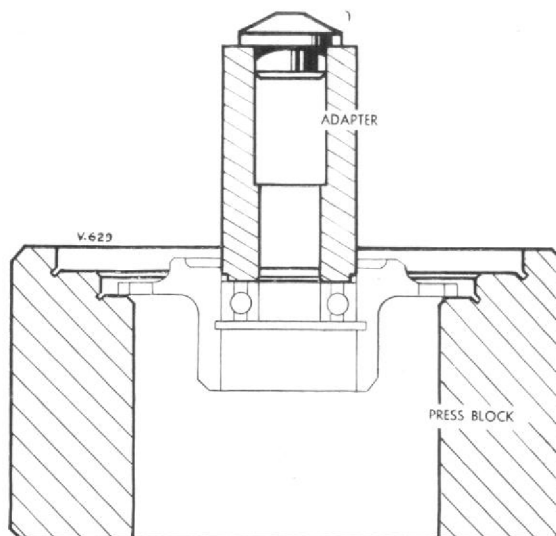


Fig. 18. Adapter T.77221 for pressing out remaining ball bearing from tachometer drive gear housing.

3. Remove the roller bearing retaining ring from the bore of the gear.
4. Place the roller bearing and gear assembly, small gear downwards, on pot fixture T.77660 and using adapter T.77721, press the roller bearings and spacers out of the gear bore.

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