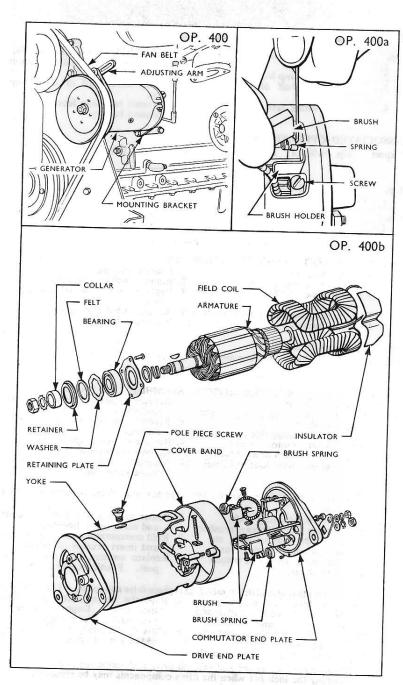


ELECTRICAL SYSTEM

Op. 400 REPLACE GENERATOR ASSEMBLY. (All Models.)
1. Disconnect battery and generator 5. Replace generator.

6. Adjust fan belt tension. 7. Reconnect generator leads. 8. Reconnect battery. 2. Remove generator. . Remove pulley. 4. Replace pulley. Op. 400(a) Extra to replace generator brushes and clean commutator. (All Models.) Loosen cover and slide it along body. Raise springs and withdraw brushes. Remove brushes. 5. Clean brush holders.6. Raise springs and insert new brushes. 7. Reconnect brush leads. 8. Refit cover band and tighten clamp. 4. Rotate armature and clean commutator. Op. 400(b) Extra to overhaul generators. (All Models.) 1. Unscrew through bolts and remove commutator end bracket. 2. Remove yoke from drive end bracket. 3. Remove armature out of bracket. 4. Remove retainer plate, bearing, washers and retainer. 5. Lubricate front bearing and refit washers, retainer and bearing. 6. Replace bearing retainer plate and rivet in position. 9. Test field coils. 10. If necessary, remove coils from yoke. 12. Extract commutator end bracket plug and remove bush. 13. Insert new bush in end plate. 14. Ream bush, using reaming fixture. 15. Clean out housing and replace plug. 16. Refit drive end bracket and armature to yoke. rivet in position. 7. Clean commutator, undercut mica and test. 8. Refit drive end bracket to armature. ture to yoke. 17. Refit end plate. 18. Replace through bolts. Tools used—AT2/U 10044. A/CDETY 10175. A/CDET 10128. A/CDET 10128-AB. A/CDET 10129-B. Polepiece screwdriver. Pole expander. End plate bushing reamer. End plate bushing remover and replacer. End plate bushing reaming fixture. Front end plate replacer. ASSOCIATED OPERATIONS Domestic Op. 402. Replace generator brushes and clean commutator. (Ops. 400 and 400(a).) Op. 403. Overhaul generator assembly. (Ops. 400, 400(a) and 400(b).) Op. 10000-A. Replace generator assembly. (Op. 400.) Op. 10000-B. Overhaul generator. (Ops. 400, 400(a) and 400(b).) Op. 10000-G. Replace generator brushes and clean commutator. (Ops. Export 400 and 400(a).)



Op. 406 REPLACE VOLTAGE CONTROL REGULATOR UNIT. (All Models.) Replace regulator and reconnect wiring.

 Disconnect battery.
 Disconnect tail lamp loom. 3. Remove lower half of instrument

6. Replace lower half of instrument

4. Disconnect wiring and remove regulator.

7. Reconnect tail lamp loom.

8. Reconnect battery.

ASSOCIATED OPERATIONS

Export Op. 10505-A. Replace voltage regulator unit. (Op. 406.)

Op. 408. REPLACE BATTERY. (All Models.)

1. Remove battery.

2. Replace battery.

Op. 408(a) Extra to replace battery carrier. (All Models.)

1. Remove battery carrier.

2. Replace battery carrier.

Op. 409 REPLACE AMMETER. (All Models.)

1. Disconnect battery.

Replace ammeter.

 Disconnect tail lamp loom.
 Remove lower half of instrument box.

7. Relocate voltage regulator.
8. Replace lower half of instrument box. 9. Reconnect tail lamp loom.

4. Release regulator and move it aside.

Reconnect battery.

5. Remove ammeter.

ASSOCIATED OPERATIONS

Op. 10850-A. Replace ammeter. (Op. 409.)

Op. 410 REPLACE STARTER MOTOR ASSEMBLY. (All Models.) starter drive

Disconnect battery.
 Disconnect starter and relay switch (diesel) cables.

3. Disconnect operating link (diesel).

housing 7. Replace (diesel). switch bracket 8. Replace relay (diesel).

4. Remove starter motor assembly.
5. Remove relay switch bracket (diesel).
10. Reconnect operating link (diesel).

6. Remove starter drive housing (diesel). 11. Reconnect starter, relay switch (diesel) and battery.

Op. 410(a) Extra to replace starter motor brushes and clean commutator. (All Models.)

Slide cover band along body.
Raise springs and withdraw brushes.
Remove cable terminal nuts, etc.
Remove commutator end plate.
Unsolder brush leads and detach.

6. Clean commutator.

7. Solder new brush leads to field coils and earth brush holders.

8. Refit commutator end plate in yoke

and insert brushes in holders.

9. Replace washers, etc., on terminal post. Position cover band.

bush and spring.

Op. 410(b) Extra to overhaul drive (diesel) or replace drive and spring. (All Models.)

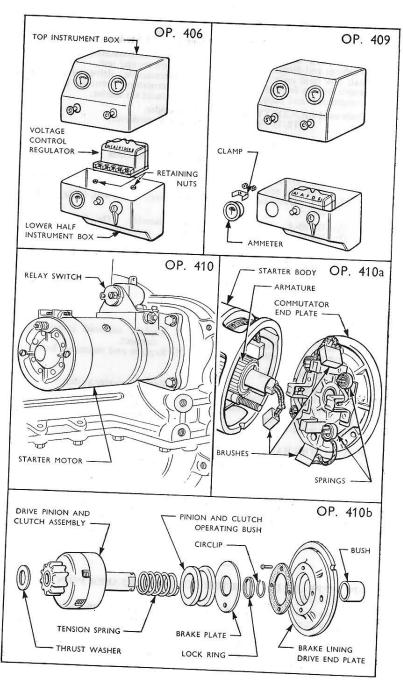
1. Open the lock ring retaining the circlip, depress the brake plate and remove lock ring and circlip.

2. Remove the brake plate, operating bush and spring hush and spring bush and spring bush and spring the lock ring to hold the clip securely in position.

securely in position.



In the case of the petrol and vap. oil drive and spring remove the split pin retaining the lock nut when the drive components may be removed.



Op. 410(c) Extra to overhaul the starter motor. (All Models.)

- 3. Remove bushes from drive end and commutator end plates and renew.
- Remove yoke assembly, test field windings and dismantle from yoke.

 Install new field coils in yoke.

 Remove bushes from drive and and are assemble to yoke assemble to yoke and are as 5. Reassemble drive end plate to armature, assemble to yoke and build up starter.

Tools used—A/CDETY 10175. Pole expander. Polepiece screwdriver. AT2/U 10044.

ASSOCIATED OPERATIONS

Domestic Op. 411. Replace starter motor brushes and clean commutator. (Ops.

Op. 411. Replace states motor branches and 410(a).
Op. 412. Overhaul starter motor drive (diesel) or replace drive and spring. (Ops. 410 and 410(b).)
Op. 413. Overhaul starter motor and drive. (Ops. 410, 410(a), 410(b) and 410(c).)

Op. 11000-A. Replace starter motor assembly. (Op. 410.) Op. 11000-B. Overhaul starter motor assembly. (Ops. 410, 410(a), **Export**

410(b) and 410(c).)
Op. 11350-A. Overhaul starter motor drive (diesel) or replace drive and spring. (Ops. 410, 410(a) and 410(b).)

Op. 414. REPLACE STARTER SWITCH

Diesel engines

- Disconnect and remove battery.
 Disconnect cables from solenoid.
- 3. Remove solenoid switch.

Petrol-Vap. Oil engines

- 1. Disconnect battery.
- Disconnect operating cable. 3. Disconnect main feed wire and switch
- to starter motor cable. Remove starter switch.
- 4. Replace solenoid switch and reconnect.
- 5. Replace and reconnect battery.
- 5. Replace starter switch.
- 6. Reconnect starter motor to switch cable and main feed wire.
- 7. Reconnect operating cable.
- 8. Reconnect battery.

ASSOCIATED OPERATIONS

Op. 11450-A. Replace starter relay switch. (Op. 414.) **Export**

Op. 415. REPLACE STARTER CONTROL CABLE. (Petrol-Vap. Oil.)

- 1. Disconnect control in top of instrument box.
- 2. Remove starter control pull cable.
- 3. Replace starter control pull cable.
- 4. Reconnect control in top of instrument box.

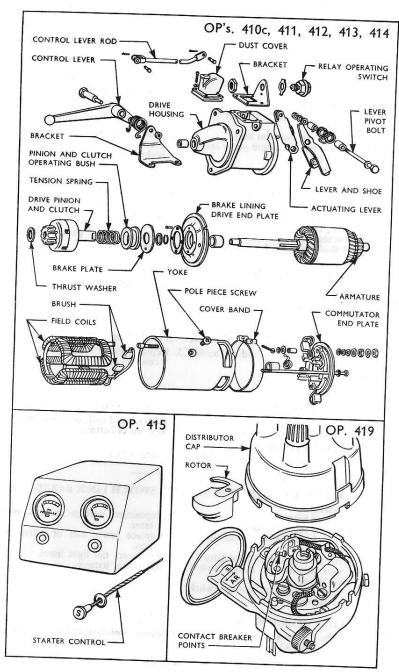
Op. 419 REPLACE DISTRIBUTOR CONTACT BREAKER POINTS. (Petrol-Vap. Oil.)

- Remove distributor cap and rotor. 2. Remove contact breaker points.
- 3. Refit points and adjust gap setting.
- 4. Replace rotor and cap.

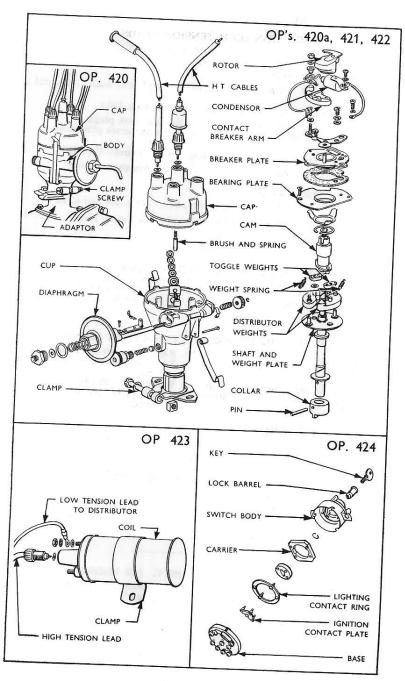
SOCIATED OPERATIONS

Op. 12100-C. Replace distributor contact breaker poli

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Op. 420 REPLACE DISTRIBUTOR AND RETIME. (Petrol—Vap. Oil.)
 Disconnect battery. Disconnect spark plug leads. Disconnect low tension wire at distributor. Remove coil high tension lead. Slacken and remove clamp screw and lift out distributor. Replace distributor. Retime distributor. Reconnect high and low tension leads. Reconnect spark plug leads. Reconnect spark plug leads. Connect timing light, run engine and make final settings to ignition.
Op. 420(a) Extra to overhaul distributor. (Petrol-Vap. Oil.)
 Remove condenser and breaker plate. Remove cam and governor weights. Remove pin and driving collar. Remove shaft from distributor body. Install shaft and refit driving collar.
ASSOCIATED OPERATIONS
Domestic Op. 421. Overhaul distributor and retime. (Ops. 420 and 420(a).) Export Op. 12100-A. Replace distributor assembly. (Op. 420.) Op. 12100-B. Overhaul distributor. (Ops. 420 and 420(a).)
Op. 422 REPLACE DISTRIBUTOR CAP. (Petrol—Vap. Oil.) 1. Disconnect spark plugs and coil leads at cap. 2. Remove distributor cap.
Op. 423 REPLACE IGNITION COIL. (Petrol—Vap. Oil.) 1. Disconnect battery. 2. Disconnect and remove coil. ASSOCIATED OPERATIONS Export Op. 12024-A. Replace ignition coil. (Op. 423.)
Op. 424 REPLACE IGNITION OR STARTER SWITCH LOCK BARREL. (All
Models.) 1. Disconnect battery. 2. Disconnect tail lamp loom. 3. Remove lower half of instrument box. 4. Release voltage control regulator. 5. Remove ignition or starter switch 7. Reposition voltage control regulator. 8. Replace lower half of instrument box. 9. Reconnect tail light loom. 10. Reconnect battery.
lock barrel. 6. Replace ignition or starter switch lock barrel.
ASSOCIATED OPERATIONS
EXPORT Op. 11575-A. Replace ignition or starter isolation switch lock barrel (Op. 424.)



Op. 425 REPLACE IGNITION HIGH TENSION LEADS

1. Disconnect and remove H.T. leads. 2. Replace H.T. leads.

ASSOCIATED OPERATIONS

Op. 12283-A. Replace all distributor to spark plug leads. (Op. 425.)

Op. 426 REPLACE SPARKING PLUGS. (Petrol-Vap. Oil.)

- Disconnect spark plug leads.
- 3. Replace spark plugs.
- 2. Remove spark plugs.
- 4. Reconnect spark plug leads.

Op. 426(a) Extra to clean and reset sparking plugs. (Petrol-Vap. Oil.)

1. Sandblast sparking plugs.

2. Reset plug gaps and test.

ASSOCIATED OPERATIONS

Domestic Op. 427. Clean and reset sparking plugs. (Ops. 426 and 426(a).)

Op. 12405-C. Remove, clean, reset and replace spark plugs. (Ops. 426 and 426(a).)

Op. 429 REPLACE HEADLAMP REFLECTORS (each). (All Models.)

1. Remove rim and glass assembly.
2. Remove bulb holder.

4. Refit the reflector.
5. Install the bulb holder.

3. Remove the reflector.

6. Replace the rim and glass assembly.

Op. 430 REPLACE HEADLAMP ASSEMBLY (each). (All Models.)

- 5. Refit headlamp to radiator shell.
- 2. Disconnect earth wire from radiator 6. Reconnect the leads at snap con
 - nection.
- 3. Disconnect wires at snap connectors.
 4. Remove headlamp from radiator

 8. Reconnect battery and align head-

 - shell.

ASSOCIATED OPERATIONS

Export Op. 13002-A. Replace headlamps (each). (Op. 430.)

Op. 432 REPLACE CONTROL BOX TO REAR JUNCTION BOX WIRING LOOM. (All Models.)

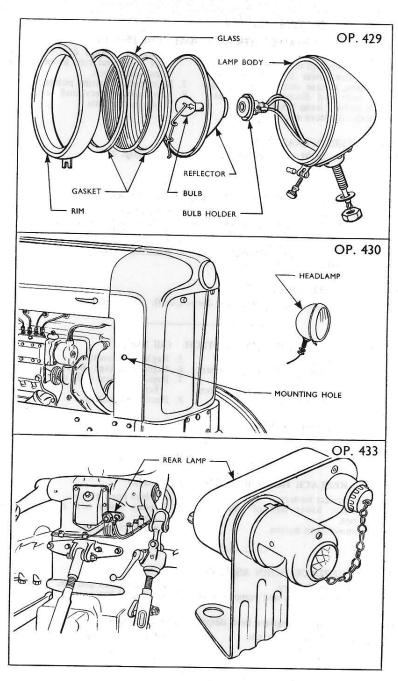
- Disconnect the battery.
- 4. Reconnect loom and replace lower
- half of instrument box. 5. Reconnect tail lamp loom.
- 6. Reconnect battery.
- Disconnect tail lamp loom.
 Remove lower half of instrument box and disconnect loom.

Op. 433 REPLACE REAR LAMP ASSEMBLY. (All Models.)

1. Disconnect wires and remove lamp 2. Reconnect wires and replace lamp assembly.

ASSOCIATED OPERATIONS

Op. 13407-A. Replace rear lamp. (Op. 433.) Export



Op. 434 REPLACE MAIN WIRING LOOM. (All Models.)

- Disconnect battery.
 Disconnect all wising
- Disconnect all wiring points.
 Disconnect all wiring points.
 Remove lower half of instrument box, release voltage control regulator and disconnect all wires.
- Withdraw loom assembly. Relocate loom assembly.
- 6. Reconnect voltage control regulator wires and refit lower half of instrument box.
 7. Reconnect all wiring points.
- 8. Reconnect battery and test lights and instruments.

ASSOCIATED OPERATIONS

Op. 14401-A. Replace main wiring loom. (Op. 434.) Export

Op. 436 REPLACE WING LAMP ASSEMBLY. (All Models.)

- 1. Disconnect battery.
- 2. Detach rim and glass assembly.
- 3. Disconnect feed and earth wires and 6. Reconnect the wires.
- remove rim and glass.
 4. Remove side lamp and bracket and separate parts.
- 5. Reassemble side lamp and bracket and install on mudguard.
- 7. Replace rim and glass assembly.
- 8. Reconnect battery.

ASSOCIATED OPERATIONS

Op. 13202-A. Replace side lamps (each). (Op. 436.)

Op. 437 REPLACE LIGHTING SWITCH. (All Models.)

- 1. Discount battery.
- 2. Remove lower half of instrument
- box.
- 3. Detach the voltage control regulators. 4. Remove the switch.
- 5. Replace the switch.
- 6. Replace voltage control regulator.
 7. Replace lower half of instrument
 - box.
- 8. Reconnect battery.

ASSOCIATED OPERATIONS

Export Op. 11575-B. Replace lighting switch. (Op. 437.)

Op. 442 REPLACE HORN BUTTON. (All Models.)

- 1. Disconnect battery.
- 2. Remove lower half of instrument box.
- 3. Remove horn button.
- Replace horn button.
- 5. Replace lower half of instrument box.
- 6. Reconnect battery.

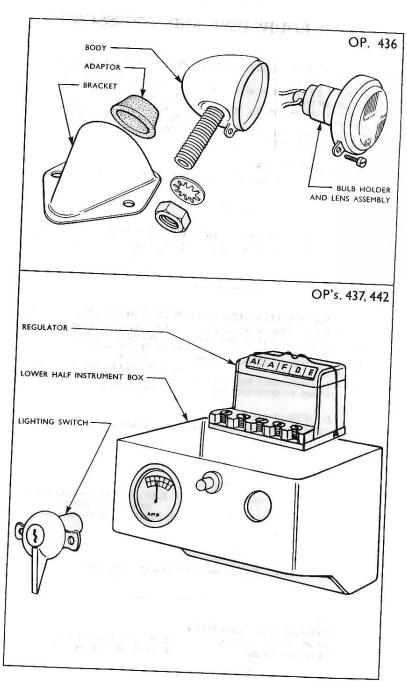
Op. 448 REPLACE HORN ASSEMBLY. (All Models.)

- 1. Disconnect battery.
- 3. Connect wires and refit horn.
- 2. Disconnect wires and remove horn.
- 4. Reconnect battery.

Op. 448(a) Extra to replace horn diaphragm. (All Models.)

- 1. Remove horn diaphragm.
- 3. Adjust horn note.

Refit horn diaphragm.



POWER EQUIPMENT AND ACCESSORIES

Op. 470 REPLACE OIL PRESSURE GAUGE ON CONTROL PANEL

- Disconnect battery.
 Disconnect oil feed pipe at rear of instrument box.
- 3. Disconnect starter, choke or stop
- 4. Ease top of instrument box forward and remove oil pressure gauge.
- 5. Replace oil pressure gauge and top of instrument box.
- 6. Reconnect starter, choke or stop controls.
- 7. Reconnect oil feed pipe.
- 8. Reconnect battery.

ASSOCIATED OPERATIONS

Export Op. 9273-C. Replace oil pressure gauge. (Op. 470.)

Op. 471 REPLACE CYLINDER BLOCK TO OIL PRESSURE GAUGE PIPE 1. Disconnect oil pipe at both ends and 2. Replace oil pipe and tighten up

Op. 473 REPLACE WATER TEMPERATURE GAUGE ON CONTROL PANEL Disconnect oil pressure gauge pipe. Release capillary tubing and unscrew adaptor. Reconnect starter choke or stope.

- screw adaptor. 3. Disconnect starter, choke or stop
- controls.
- 4. Ease top of instrument box forward and remove temperature gauge.
- controls.
- 7. Reconnect oil pressure pipe.
- 8. Reconnect adaptor and secure capilliary tubing.

ASSOCIATED OPERATIONS

Export—Op. 10861-A. Replace water temperature gauge assembly. (Op. 473.)

Op. 500 REPLACE MUDGUARDS (each)

- 1. Disconnect side and rear lamp wiring 3. Refit mudguard to footplate and rear and remove lamps.

 2. Release mudguard at footplate and

 4. Install side lamp and rear lights and
 - axle shaft housing and remove.

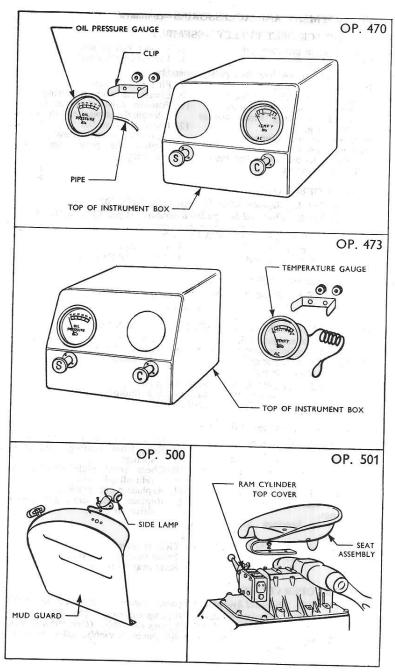
ASSOCIATED OPERATIONS

Op. 16312-A. Replace mudguards (each). (Op. 500.) Export

Op. 501 REPLACE SEAT ASSEMBLY

Remove rubber bumper.

4. Install seat on top cover.



POWER EQUIPMENT AND ACCESSORIES—continued

Op. 502 REPLACE BELT PULLEY ASSEMBLY

- Partially drain gear box oil.
 Remove belt pulley.
- Replace belt pulley.
 Top up gearbox oil.

Op. 502(a) Extra to overhaul belt pulley assembly

- 1. Remove control handle.
- Withdraw the pulley from shaft.
- Remove drive shaft and shifter.

 Dismantle lock ring, thrust washer and drive gear.
- Remove lever and spring.
- Remove oil seal.
- Remove inner and outer bearings.
- 8. Refit inner bearing.

- 9. Fit a new oil seal.
 10. Locate the lever and spring.
- 11. Position drive shaft in gear and locate thrust washer and lock ring.12. Install gear shifter and shaft and
- press on outer bearing. 13. Replace the pulley and control
 - handle.

ASSOCIATED OPERATIONS

Export

Op. 760-A. Replace belt pulley assembly. (Op. 502.)
Op. 760-B. Overhaul belt pulley assembly. (Ops. 502 and 502(a).)

Op. 503 INSTALL BELT PULLEY ASSEMBLY

- 3. Fit pulley.
- Partially drain gearbox oil.
 Remove pulley cover plate.
- 4. Top up gearbox oil.

ASSOCIATED OPERATIONS

Op. 760-C. Install belt pulley assembly. (Op. 503.)

Op. 505 REPLACE HYDRAULIC LIFT PUMP ASSEMBLY

- 1. Drain rear transmission oil.
- 2. Remove ram cylinder and top cover.
- 5. Replace ram cylinder and top cover. 6. Refill rear transmission with oil and
- test pump.
- Remove hydraulic pump.
 Replace hydraulic pump.

Tools used—Tr1/MD 994675. Pressure gauge. Jack tapping ac Jack tapping adaptor. Tr/D 994781. Lifting eyebolt.

Op. 505(a) Extra to overhaul lift pump

- 1. Remove pump drive gear.
- Remove pump bracket.
 Lift off oil seals and relief plate.
- springs.

- 7. Refit rear bearings and locking springs.

-ATTr/NVMD 6306-A. Tools used-Tr/D 994667-A. Tr/D 994668-A.

8. Install drive and driven gears.

9. Refit front bearings and locking

2. Remove pump bracket.
3. Lift off oil seals and relief plate.
4. Remove front bearings and locking springs.
5. Springs.
6. Check relief plate clearance and refit all oil seals.
6. refit all oil seals.

5. Remove drive and driven gears.
6. Remove rear bearings and locking springs.
11. Replace pump bracket.
12. Replace pump drive gear (do not drive on gear).

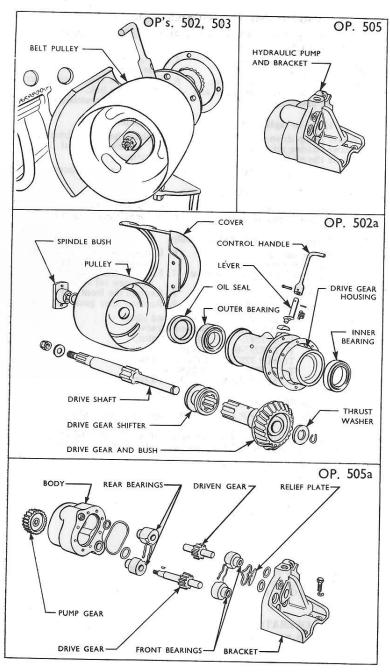
Gear remover.

Front bearing remover. Rear bearing remover.

ASSOCIATED OPERATIONS

Domestic Op. 506. Overhaul hydraulic lift pump assembly. (Ops. 505 and 505(a).)

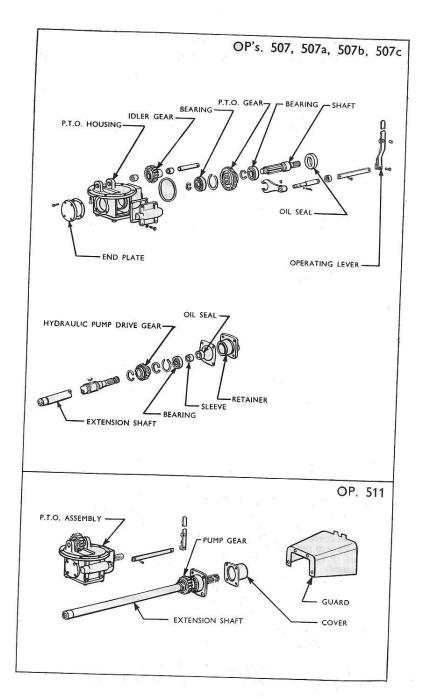
Op. 600-A. Replace hydraulic lift pump assembly. (Op. 505.) Op. 600-B. Overhaul hydraulic lift pump assembly. (Ops. 505 and 505(a).) (Op. 505(a).)



POWER EQUIPMENT AND ACCESSORIES—continued Op. 507 REPLACE P.T.O. EXTENSION SHAFT AND HYDRAULIC PUMP DRIVE GEAR ASSEMBLY 5. Replace P.T.O. extension shaft and Drain rear transmission oil. retainer assembly. 6. Refit P.T.O. shield and cover. 7. Replace top link. 8. Refill oil in transmission. Remove top link. Remove P.T.O. shield and cover. Remove P.T.O. extension shaft and retainer assembly. Op. 507(a) Extra to replace drive gear, oil seal or retainer 4. Replace the pump drive gear.5. Fit a new oil seal and install 1. Remove pump drive gear. 2. Remove bearing retainer. retainer. 3. Remove the oil seal. Tools used-Tr/MD 7305-B. Extension shaft oil seal replacer. Op. 507(b) Extra to replace P.T.O. assembly 3. Replace P.T.O. assembly 1. Disconnect operating link. 4. Reconnect operating link. 2. Remove P.T.O. assembly. Op. 507(c) Extra to overhaul P.T.O. assembly 6. Locate the front bearing and position P.T.O. gear.7. Enter the shaft and rear bearing and 1. Remove idler gear and shaft. Detach front end plate. Withdraw front bearing and remove fit a new oil seal. 8. Replace the front end plate. 9. Replace idler gear and shaft. shaft assembly. 4. Lift out P.T.O. gear. 5. Remove rear bearing off shaft. Tools used—Tr/D 77012. Tr/D 7006. Tr/D 7297. Tr/D 7297. Tr/D 7297-B. Dummy end plate. Bearing remover. Oil seal locator. Adaptor. Tr/MD 7297-B. Oil seal replacer. Tr/D 7255-A. Adaptors. Tr/MD 7255-A. P.T.O. shaft remover. ASSOCIATED OPERATIONS Domestic Op. 508. Replace P.T.O. Extension shaft, gear, oil seal or retainer. (Ops. 507 and 507(a).) Op. 509. Replace P.T.O. assembly. (Ops. 507 and 507(b).) Op. 510. Overhaul P.T.O. assembly. (Ops. 507-507(b) and 507(c).) Op. 600-E. Replace hydraulic pump drive gear on P.T.O. extension shaft. Export (Ops. 507 and 507(a).) Op. 700-A. Replace P.T.O. assembly. (Ops. 507 and 507(b).) Op. 700-B. Overhaul P.T.O. assembly. (Ops. 507, 507(b) and 507(c). Op. 700-C. Replace P.T.O. extension shaft oil seal or retainer. (Ops. 507 and 507(a).) Op. 511 INSTALL P.T.O. ASSEMBLY 4. Install P.T.O. and control lever 1. Drain oil from rear transmission. assembly. Remove P.T.O. cover plate. Remove P.T.O. extension shaft cover 5. Install extension shaft. 6. Refill oil in rear transmission. plate.

ASSOCIATED OPERATIONS

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POWER EQUIPMENT AND ACCESSORIES—continued Op. 512 REPLACE HYDRAULIC LIFT CONTROL VALVE GEAR ASSEMBLY 2. Replace valve gear assembly. 1. Remove valve gear assembly. Op. 512(a) Extra to replace any or all valve gear parts (includes testing and resetting) 5. Install unloading and non-return 1. Remove cover and end plates. Remove quadrant and lever assembly. Remove unloading and non-return valve assemblies. 6. Re-assemble and replace quadrant and lever assemblies. valves Replace cover and end plates. 4. Dismantle quadrant and lever. 8. Test valve gear. Op. 512(b) Extra to replace hydraulic ram cylinder or piston 5. Reassemble the piston. Remove the piston and ram cylinder. Remove oil seal at front of cylinder. Install the cylinder. 3. Push the piston out from the rear. 4. Dismantle the piston. 7. Refit the piston. 8. Locate a new oil seal. ASSOCIATED OPERATIONS Domestic Op. 513. Overhaul hydraulic lift control valve gear. (Ops. 512 and 512(a).) Replace hydraulic ram cylinder and/or piston. Op. 514 Re 512(b).) Replace hydraulic ram cylinder and/or piston. (Ops. 512 and *Op.* 500(*b*). 512(*b*). Export Op. 500-E. Replace hydraulic lift control valve chest assembly. (Op. 500-F. Overhaul hydraulic lift control valve chest assembly. Op. 500-F. Overhau 512 and 512(a).) Op. 516 REPLACE HYDRAULIC RAM CROSS-SHAFT, BUSHES SPACERS AND/OR CRANK ARM AND CONNECTING ROD AND 4. Replace cross shaft, crank arm, connecting rod, bearings and Remove lift arms. connecting rod, 2. Remove rear cover plate. 3. Remove cross shaft, crank arm, connecting rod, bearings and spacers 5. Replace lift arms. connecting rod, 6. Refit cover plate. spacers. ASSOCIATED OPERATIONS Op. 500-C. Replace hydraulic ram cross-shaft, bushes and spacers and/or Export crank arm and connecting rod. (Op. 516.) Op. 518 INSTALL HYDRAULIC SYSTEM AND LIFT LINKAGE 7. Install ram cylinder, valve gear and 1. Drain rear transmission oil. top cover assembly. Remove seat and top cover. Remove seat and top cover. Remove cover plate in base. Install pump pedestal and pump. Install P.T.O. and control lever Install lifting link brackets. Install lifting link and rooks. assembly. 12. Install top lifting link. 6. Refill transmission with oil. Tools used—Trl/MD 994675. Pressure gauge. Jack tapping ac Jack tapping adaptor. Lifting eyebolt. Tr/D 994781.

ASSOCIATED OPERATIONS

Op. 500-D. Install complete hydraulic system and lift linkage. (Op. 518.)

1. Remove drawbar assembly.

2. Replace drawbar assembly.