Group 8

Large Capacity AC Dynamo (Option) Installation

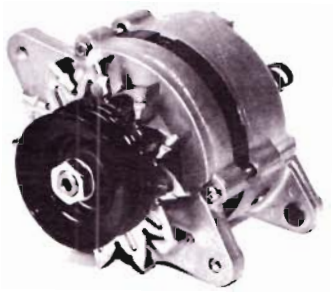
An optional AC dynamo with a larger capacity than the standard one can be attached to the tractor.

Kit parts No. 66704-82502

Standard 12V, 10A

Option 12V, 35A

If the optional AC dynamo is adopted, a suitable regulator and accessory parts also must be employed.



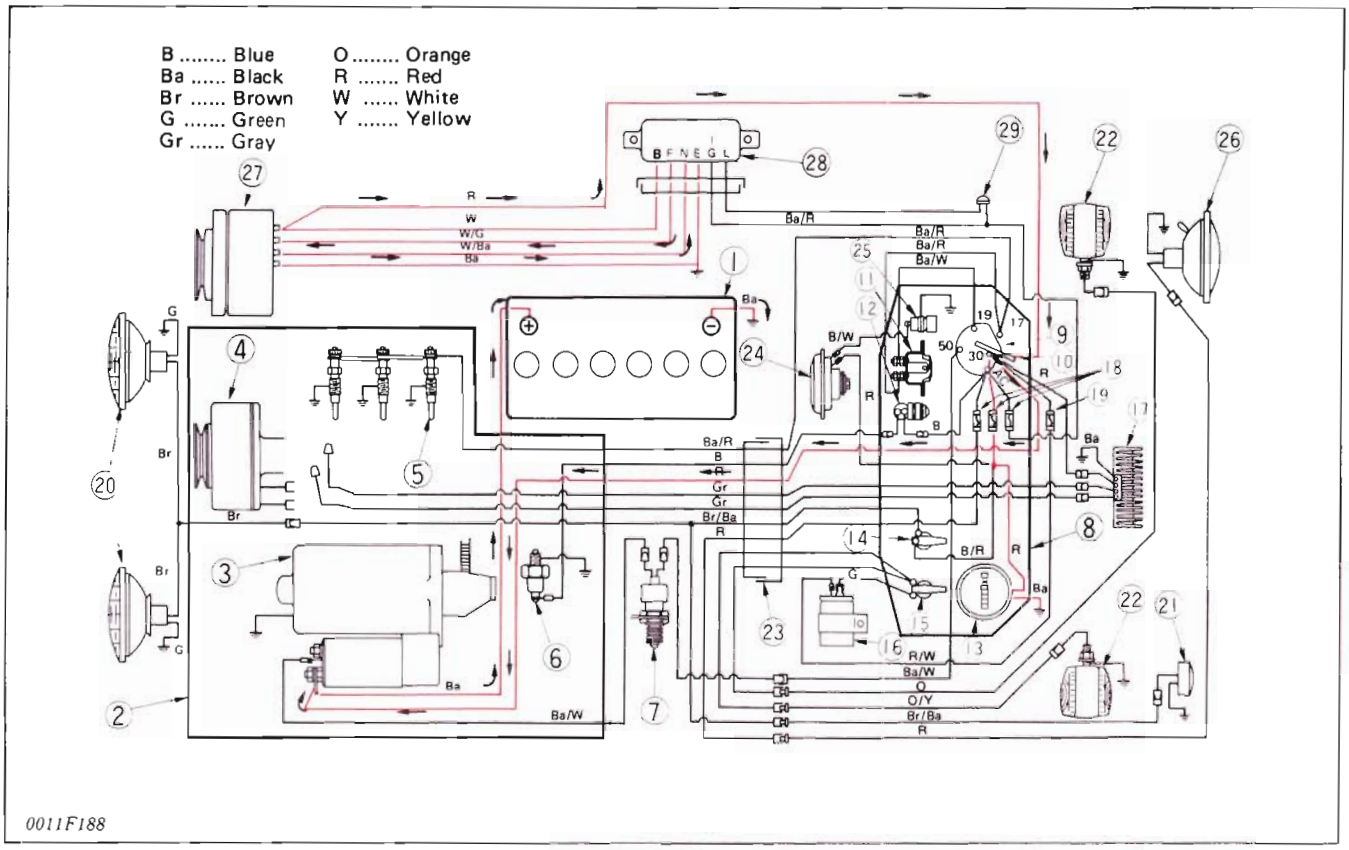
0011P245

Fig. N-82 AC Dynamo

0011P246

Fig. N-83 Regulator

Stop the function of the standard AC dynamo and regulator and arrange the circuits for the optional AC dynamo and its regulator, which provides power to the circuits.



1. Battery (12V-45AH)
2. Engine Body
3. Starter
4. AC Dynamo
5. Glow Plug
6. Oil Switch
7. Safety Switch (12V-15A)
8. Meter Panel
9. Key Switch
   (12V-17-19 ··· 30A,
   50 ··· 12A, AC ··· 10A)
10. Key
11. Glow Plug Lamp (20A)
12. Oil Lamp (12V-3.4W)
13. Hourmeter
14. Headlight Switch (12V-5A)
15. Hazard Switch
16. Hazard Unit (12V-43W)
17. Regulator
    (Regulated voltage: 14 to 15V)
18. Fuse (5A)
19. Fuse (3A)
20. Headlight (12V-15W)
21. Taillight
22. Hazard Lamp (12V-15W)
23. Coupler
24. Horn (12V-1.5AH) [option]
25. Horn Switch (3A) [option]
26. Work Light [option]
27. AC Dynamo [option]
28. Regulator (Regulated voltage:
    13.8V to 14.8V) [option]
29. Charge Lamp

Fig. N-84 Large Capacity AC Dynamo Circuit (while battery is charged)

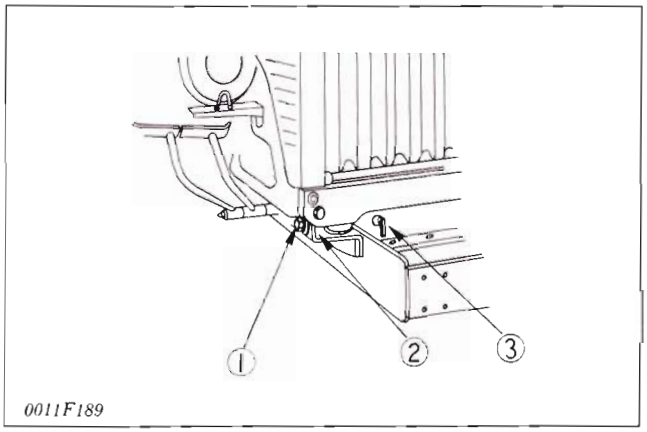
How to Install the Large Capacity AC Dynamo Kit (Option)

Preparation for Work

(1) Hand Drill
(2) 7mm (9/32 in.) drill

Removing Exterior Parts

(1) Removing Bonnet and Draining Water

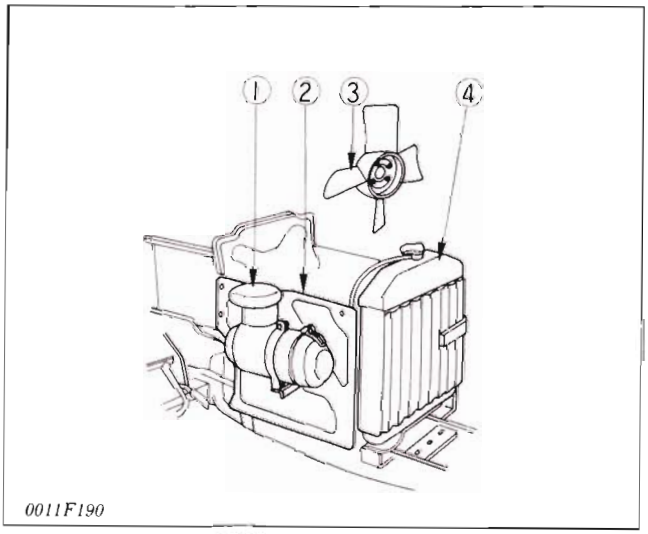


1. Bolts 2. Snap Pins 3. Drain Cock

Fig. N-85 Removing Bonnet and Draining Water

Unlock the bonnet latches from the bonnet. After removing the snap pin (2), remove the bolts (1), and then remove the bonnet.
Drain cooling water from drain cock (3).

(2) Removing Air Cleaner, Side Cover RH, Radiator, and Fan

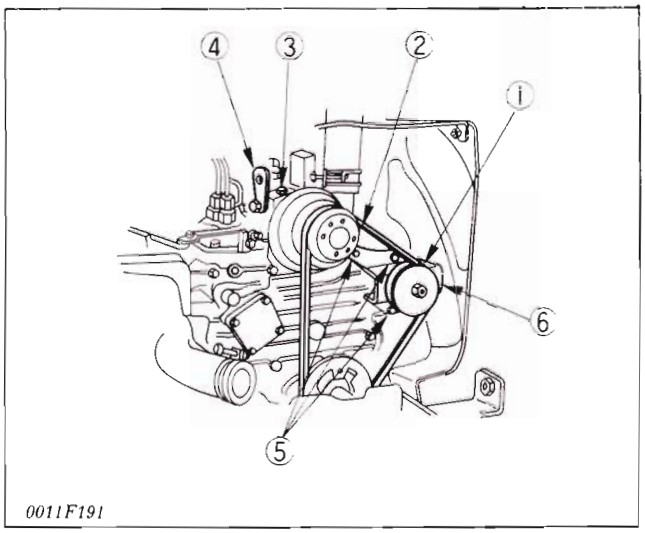


1. Air Cleaner Assembly
2. Side Cover RH
3. Fan
4. Radiator

Fig. N-86 Removing Accessories

Remove the air cleaner assembly (1), side cover RH (2), radiator (4), and fan (3).

(3) Removing Fan Belt and Tension Pulley Assembly

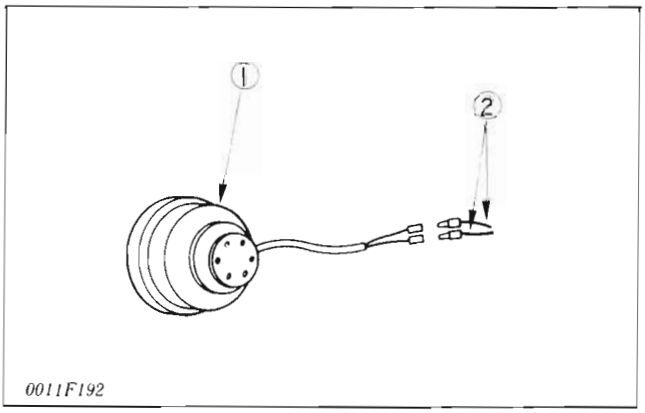


1. Tension Pulley Assembly
2. Fan Belt
3. Engine Head Bolt
4. Engine Hook
5. Bolts (3 pieces)
6. Bolt

Fig. N-87 Removing Fan Belt and Tension Pulley Assembly

Loosen the tension bolt, then remove the fan belt. Remove the tension pulley assembly. Bolts (5) cannot be used when attaching the AC dynamo kit. Bolt (6) can be used when assembling them.
Remove the engine head bolt (3) and engine hook (4).

(4) Detaching wires and removing battery



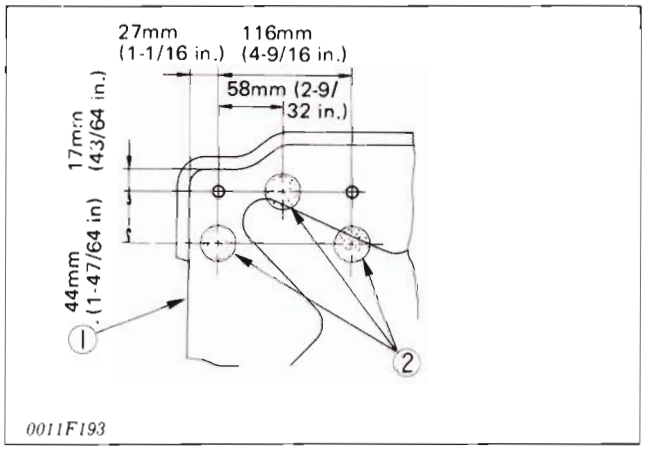
1. AC Dynamo 2. Wires

Fig. N-88 Detaching Wires

Detach the two wires from the AC dynamo. Remove the battery.

Assembling AC Dynamo Kit

(1) Drilling the Heat Insulator (Cover)

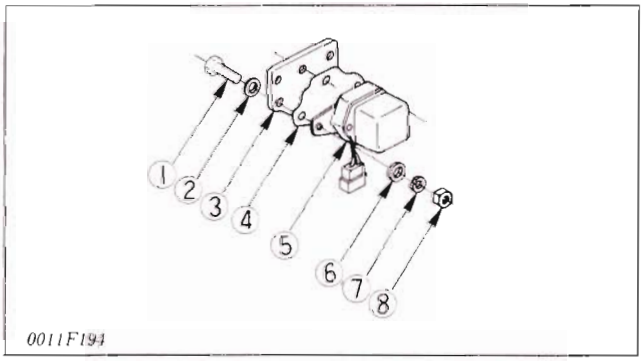


1. Heat Insulator (Cover) 2. Sponge Cushion

Fig. N-89 Measurement of Drilling and Installation of Sponge Cushion

In order to attach the regulator, drill the heat insulator (cover) (1), and install the sponge cushions (2) according to the measurements, Fig. N-89.

(2) Assembling Regulator and Regulator Cover



1. Bolts (3 pieces) . . . M6 (thread dia. 15/64 in.) ℓ = 22mm (55/64 in.)
2. Plain Washers (6 pieces)
3. Rubber Cushion
4. Regulator Cover
5. Regulator
6. Spring Washers (3 pieces)
7. Nuts (3 pieces)

[All parts are included in "AC Dynamo Kit".]

Fig. N-90 Assembling Regulator and Regulator Cover

Assemble the regulator (5), regulator cover (4) and rubber cushion (3) with three sets of bolts (1), nuts (7) and etc. (2)(6).

- Reference:
  Meaning of bolt's length

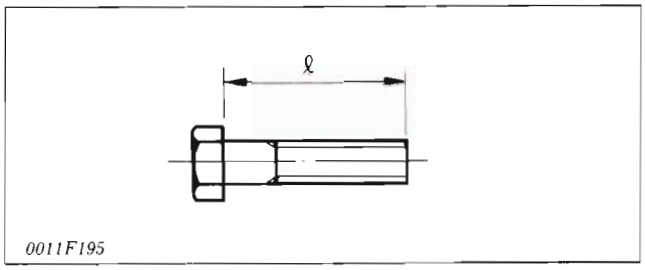
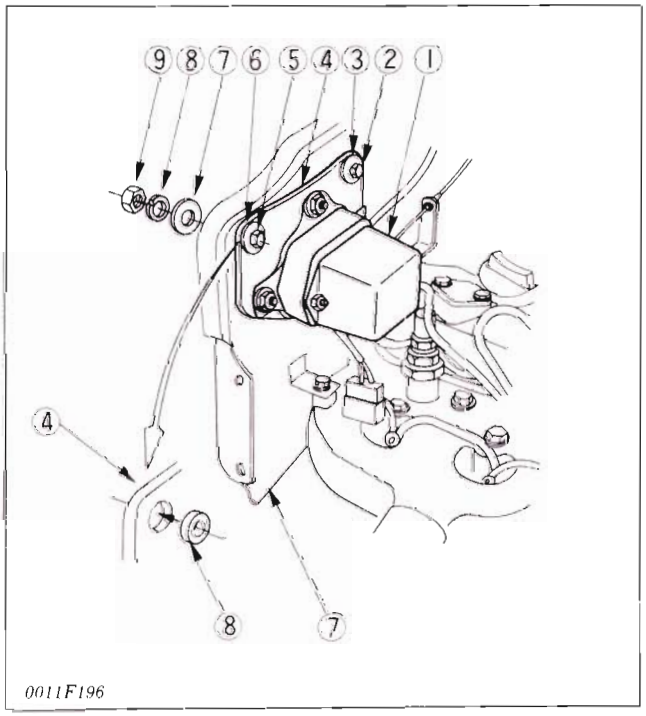


Fig. N-91 Bolt's Length

(3) Installing Regulator



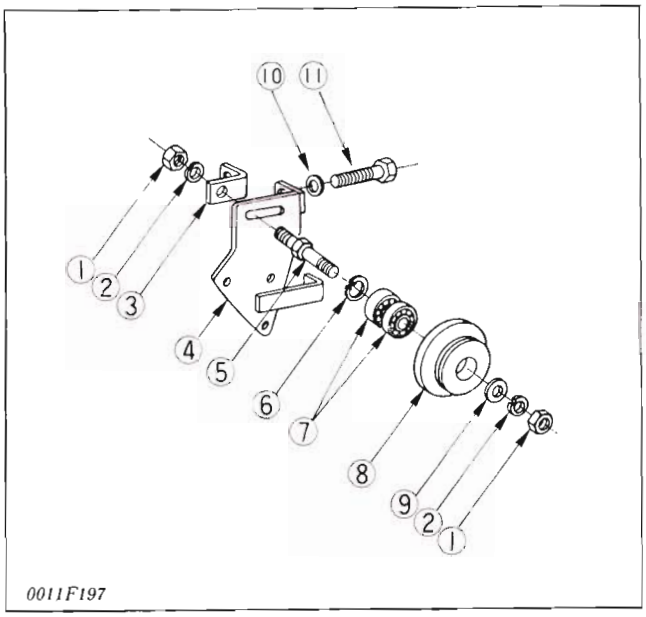
1. Regulator
2. Bolts (2 pieces) . . . M6 (thread dia. approx. 15/64 in.) ℓ = 22mm (approx. 55/64 in.)
3. Plain Washers (4 pieces) . . . dia. 22mm (approx. 55/64 in.)
4. Rubber Cushion
5. Spring Washers (2 pieces)
6. Nuts (2 pieces) . . . M6
7. Heat Insulator (Cover)
8. Collars (2 pieces)

[All parts are included in "AC Dynamo Kit".]

Fig. N-92 Installing Regulator

insert the two collars (8) to the rubber cushion (4), then install the regulator (1) on the heat Insulator (cover) (7), Fig. N-92.

(4) Assembling Tension Pulley



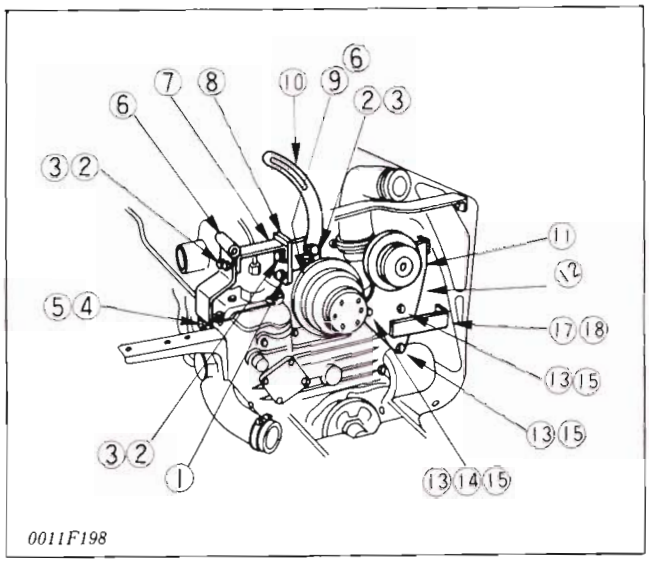
1. Nuts (2 pieces) . . . M10
2. Spring Washers
3. Tension Adjusting Plate
4. Tension Pulley Support
5. Tension Pulley Shaft
6. Internal Cir-clip
7. Ball Bearing
8. Tension Pulley
9. Plain Washer . . . dia. 22mm (approx. 55/64 in.)
10. Plain Washer . . . dia. 18mm (approx. 45/64 in.)
11. Tension Bolts . . . M8 (thread dia. approx. 5/16 in.) ℓ = 70mm (approx. 2-3/4 in.)

[All parts are included in "AC Dynamo Kit".]

Fig. N-93 Assembling Tension Pully

Press the ball bearings (7) into the tension pulley (8), and fix them with internal circlip (6) as shown in Fig. N-95. Assemble tension pulley shaft (5) and tension pulley (8). Loosely assemble tension adjusting plate (3), tension pulley support (4) and tension pulley shaft (5). Insert the tension bolt (11) a little way into tension adjusting plate (3) through the tension pulley support (4).

(5) Installing Dynamo Stay and Tension Pulley Assembly



1. Bolt (with spring washer) . . . M8 (thread dia. approx. 5/16 in.) ℓ = 20mm (approx. 25/32 in.)
2. Bolts (4 pieces) . . . M8 (thread dia. approx. 5/16 in.) ℓ = 20mm (approx. 25/32 in.)
3. Spring Washers (4 pieces)
4. Bolts (2 pieces) . . . M6 (thread dia. approx. 15/64 in.) ℓ = 18mm (approx. 45/64 in.)
5. Spring Washers (2 pieces)
6. Dynamo Support
7. Stay
8. Bracket
9. Head Bolt . . . M8 (thread dia. approx. 5/16 in.) ℓ = 83mm (approx. 3-17/64 in.)
10. Dynamo Stay
11. Tension Pulley
12. Tension Pulley Support
13. Bolts (3 pieces) . . . M6 (thread dia. approx. 15/64 in.) ℓ = 70mm (approx. 2-3/4 in.)
14. Plain Washer . . . dia. 13mm (approx. 33/64 in.)
15. Spring Washer
16. Spring Washer
17. Bolt (with spring washer)
18. Plain Washer

[These parts (1 to 14) are included in "AC Dynamo Kit"]

Fig. N-94 Installing Dynamo Stay and Tension Pulley Assembly

Remove the lower two bolts holding injection pump cover. Install the dynamo support (6) on the injection pump cover with two bolts (4) and spring washers (5). Install the stay (7) on the dynamo support (6) with bolts (2) and spring washers (3).

Install bracket (8) on cylinder head with bolt (1) and head bolt (9) and spring washer (16). Then tighten the bolt (2) with spring washer (3).

Head bolt (9) tightening torque. . . 42 to 47 Nm (4.3 to 4.8kgf.m, 31 to 35 ft-lbs)

Bolts (1), (2) tightening torque . . . 24 to 27 Nm (2.4 to 2.8 kgf·m, 17 to 20 ft-lbs)
Bolts (4) tightening torque . . . 9.8 to 11.3 Nm (1.00 to 1.15 kgf·m, 7.2 to 8.3 ft-lbs)
Loosely install the dynamo stay (10). Install the tension pulley support (12) as shown in Fig. N-94. Be sure to use a plain washer (14) when tightening the bolt (13).
Bolts (13) tightening torque . . . 9.8 to 11.3 Nm (1.00 to 1.15 kgf·m, 7.2 to 8.3 ft-lbs)
Tighten the bolt (17) to the tension pulley support (12) through the muffler stay and side cover LH from outside.

(6) Installing AC Dynamo and Fan Belts

Install the dynamo assembly (4) and dynamo cover (5). Loosely tighten the bolts (1), (6) in order to adjust tension of fan belts later. Install fan belts (7), (8).

1. Bolt . . . M8 (thread dia. approx. 5/16 in.) ℓ = 105mm (approx. 4-9/64 in.)
2. Plain Washers (2 pieces) . . . dia. 18mm (approx. 45/64 in.)
3. Spring Washers (2 pieces)
4. AC Dynamo Assembly
5. Dynamo Cover
6. Bolt . . . M8 (thread dia. approx. 5/16 in.) ℓ = 35mm (approx. 1-3/8 in.)
7. Fan Belt . . . FM1281 (short one)
8. Fan Belt . . . FM 1331 (long one)

[All parts are included in "AC Dynamo Kit".]

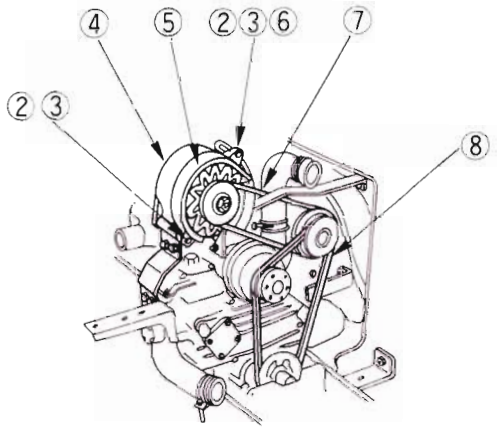


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Fig. N-95 Installing AC Dynamo and Fan Belts (1/3)

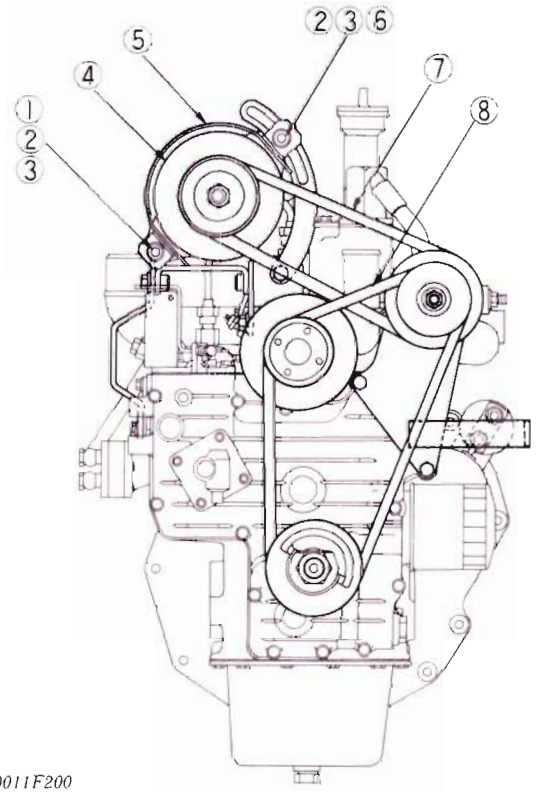

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Fig. N-96 Installing AC Dynamo and Fan Belts (2/3)

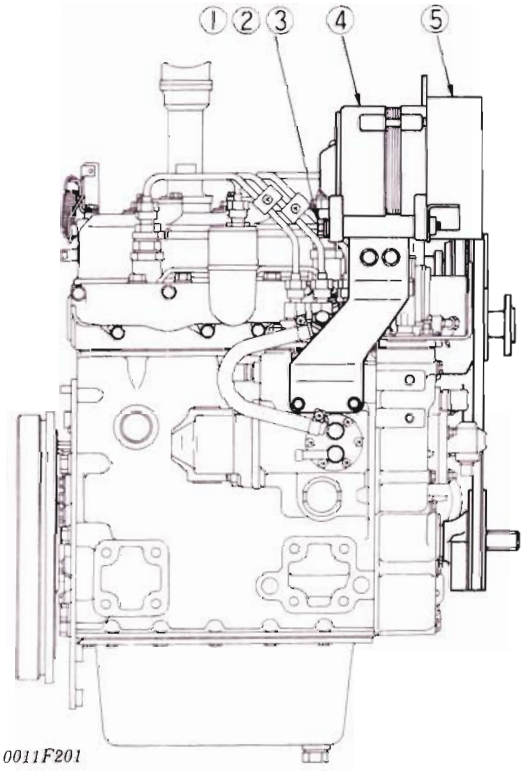

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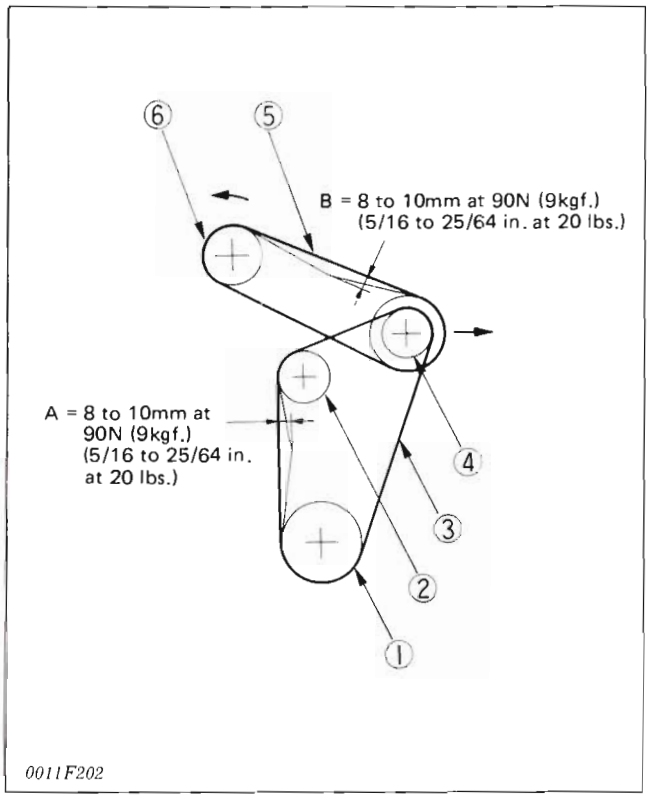
Fig. N-97 Installing AC Dynamo and Fan Belts (3/3)

(7) Adjusting fan belt tension

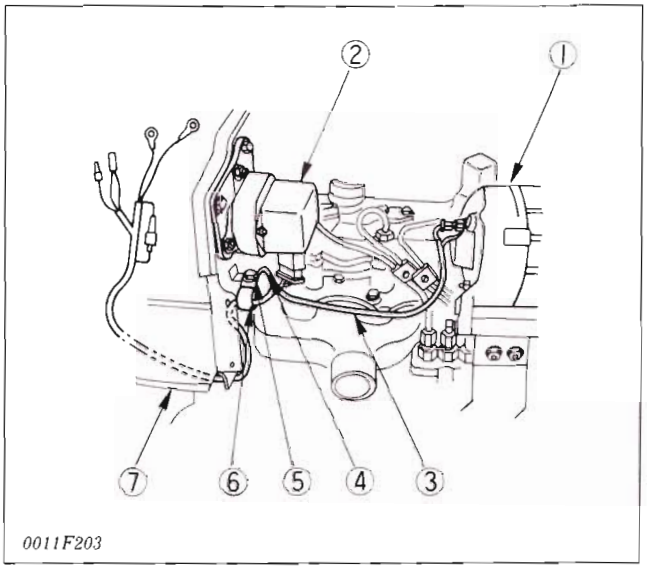


1. Fan Drive Pulley
2. Fan Pulley (Dynamo)
3. Fan Belt
4. Tension Pulley
5. Fan Belt
6. Dynamo Pulley

Fig. N-98 Adjusting Fan Belt Tension

Adjust tension of fan belt (3) with the tension pulley (4) as shown in Fig. N-98. Then adjust tension of fan belt (5) with dynamo pulley (6) and tighten bolts of dynamo support, dynamo stay and AC dynamo to dynamo stay, Fig. N-97, Fig. N-94.

(8) Wiring AC Dynamo and Regulator



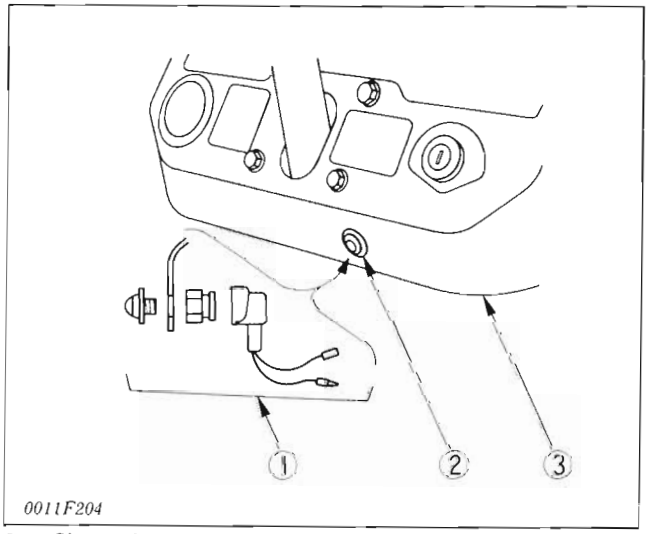
1. AC Dynamo Assembly
2. Regulator
3. Wire Harness
4. Ground Wire
(included in wire harness (3))
5. Cord Clamp
6. Bolt
7. Battery Bracket

[These parts ((1) to (5)) are included in "AC Dynamo Kit"]

Fig. N-99 Wiring AC Dynamo and Regulator

Connect the wire harness (3) with AC dynamo assembly (1) and regulator (2). Remove bolt (6). Then install cord clamp (5) and ground wire (4) with bolt (6). Fix the wire harness (3) with cord clamp (5). After that, pass the another end of wire harness (3) under the battery bracket (7).

(9) Installing Charge Lamp



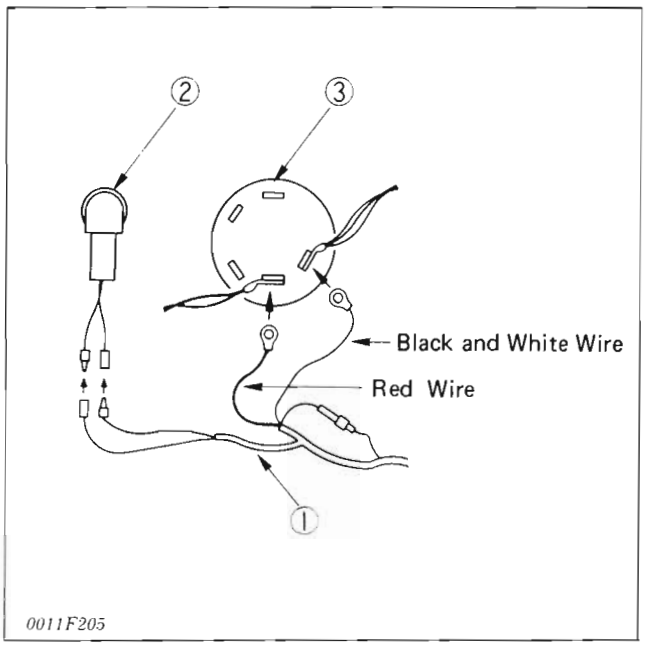
1. Charge Lamp Assembly 2. Plug 3. Panel

[Charge lamp assembly is included in the "AC Dynamo Kit".]

Fig. N-100 Installing Charge Lamp

After removing plug (2) from panel (3), install the charge lamp assembly (1) as shown in Fig. N-100.

(10) Wiring of Key Switch and Charge Lamp

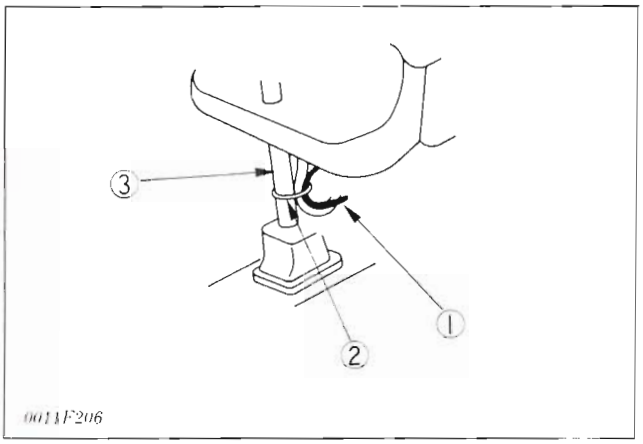


1. Wire Harness
2. Charge Lamp Assembly
3. Key Switch

Fig. N-101 Wiring of Key Switch and Charge Lamp

Connect the wire harness (1) to key switch (3) and charge lamp (2) as shown in Fig. N-101.

(11) Securing Wire Harness to Steering Post



1. Wire Harness
2. Band
3. Steering Post

Fig. N-102 Securing Wire Harness to Steering Post

Secure the wire harness (1) to steering post (3) with band (2), Fig. N-102.

Reassembling Exterior Parts

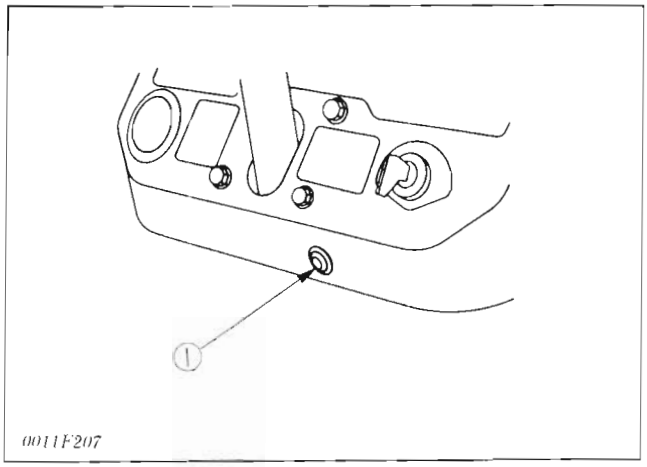
Place the battery on the battery bracket. Install the side cover RH and air cleaner assembly.

Install the fan and radiator, and connect the water pipes.

Attach the bonnet (hood).

Fill the radiator with water.

Checking Operation



1. Charge Lamp

Fig. N-103 Checking Operation

Make sure the charge lamp (1) lights when key is turned to "ON".

Make sure the charge lamp (1) goes off when the engine starts.

Group 9

Specifications

(R.V.) . . . . . Reference Value
(A.L.) . . . . . Allowable Limit

Battery

Specific gravity of electrolyte at 20°C (68°F)		
100% charged	1.280	Handling of Dry Battery
50% charged	1.210	Specific gravity of 1.28 to 1.20 (at 20°C,
Discharged	1.120	68°F) after resupplying electrolyte
Weight without electrolyte	9 kg	(19.8 lbs.)
Weight with electrolyte	12.5 kg	(27.6 lbs.)

Glow Plug

Resistance	1.35 to 1.65 ohm

Glow Indicator (Lamp)

Allowable current	20A, 10V

AC Dynamo

Output current	
Nominal	10A, 12V
Actual	8.5A, 14V/4250 rpm
Rotor coil total resistance	0.18 ohm at 25°C (77°F)
Revolution of charging start	1800 rpm

Regulator

No-load regulating voltage	14.0 to 15.0V

Starter

Number of teeth			
Pinion		9	
Ring gear		98	
No-load test			
Voltage		at 11V	
Current		50A or less	
Speed		5000 rpm or more	
Commutator O.D.			
	(R.V.)	28.0 mm	(1.1024 in.)
	(A.L.)	27.0 mm	(1.0630 in.)
Mica undercutting			
	(R.V.)	0.5 to 0.8 mm	(0.0197 to 0.0315 in.)
	(A.L.)	0.2 mm	(0.0079 in.)

Brush			
Length.....(R.V.).....	16 mm	(0.6299 in.)	
(A.L.).....	10.5 mm	(0.4134 in.)	more
Width .....(R.V.).....	12 mm	(0.4724 in.)	
Thickness .....(R.V.).....	7 mm	(0.2756 in.)	

Safety Switch

Allowable current	15A, 12V	
Stroke.....	10 mm	(25/64 in.)
Stroke till switch on	2 mm	(5/64 in.)

Hourmeter ..... Electrical type

Lighting Switch

Allowable current	5A, 12V

Dual Beam Headlight Bulbs

Power consumption.....	15W, 12V

Hazard Unit

Allowable current	43W, 12V
Cycle.....	60 to 85 C/Min.
Operating voltage	10 to 14V
Bulbs power consumption.....	15W, 12V

Horn (Option)

Power consumption.....	18W, 12V

Horn Button (Option)

Allowable current	3A	
Stroke.....	1.5 mm	(1/16 in.)

High Power Dynamo Kit (Option)

AC Dynamo	
Nominal output.....	12V, 35A, 420W
Regulator	
No-load regulating voltage.....	13.7 to 14.7V