

## ABBREVIATIONS USED IN TOYOTA REPAIR MANUALS

For convenience, the following abbreviations are used in Toyota repair manuals.

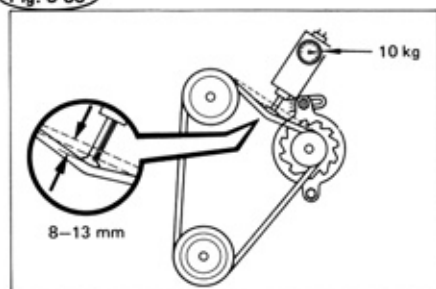
Abbreviation	Term	Abbreviation	Term
A/C	Air Conditioner	MP	Multipurpose
AI	Air Injection	M/T	Manual Transmission
A/T	Automatic Transmission	O/S	Oversize
BDC	Bottom Dead Center	RH	Right-hand
BTDC	Before Top Dead Center	RHD	Right-hand Drive
CO	Carbon Monoxide	SST	Special Service Tool
EGR	Exhaust Gas Recirculation	STD	Standard
EVAP	Fuel Evaporative Emission Control System	T	Tightening Torque
EX	Exhaust	TDC	Top Dead Center
HIC	Hot Idle Compensation	U/S	Undersize
IN	Intake	W/	With
LH	Left-hand	W/O	Without
LHD	Left-hand Drive		

## 2. ILLUSTRATED INSTRUCTIONS

All important steps in every service job are illustrated, but obvious steps are omitted to save space. Experienced technicians may only need to glance at the overview illustration and/or specifications.

### 3-28 ENGINE SERVICE – Timing Chain & Camshaft

Fig. 3-88



Adjust the V belt deflection.  
Except USA & Canada

**Drive belt deflection:**

**7 – 11 mm at 10 kg  
(0.28 – 0.43 in.) (22 lb)**

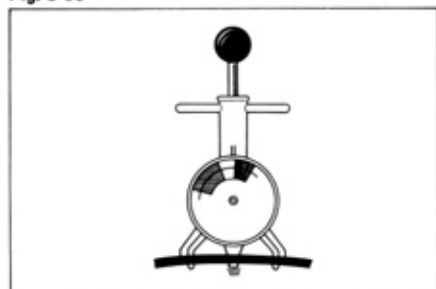
D

E

F

C

Fig. 3-89



Using a borroughs tension gauge BT-33-73F,  
adjust the belt deflection.

**Drive belt deflection: 80 ± 20 lbs  
(Used belt)**

Fig. 3-90



Apply liquid sealer to the cylinder block and  
chain cover as shown in the figure.

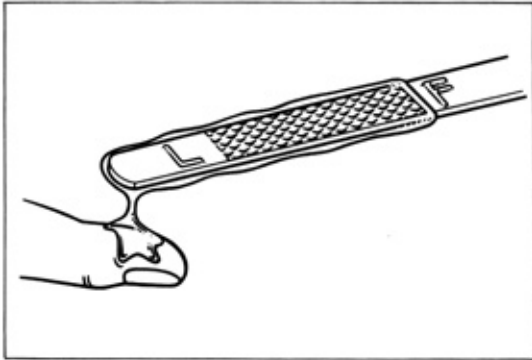
**C** : The pictures give basic information on what to do in each step.

**D** : A symbol is often used to explain the action required.

**E** : The text explains how to perform the step.

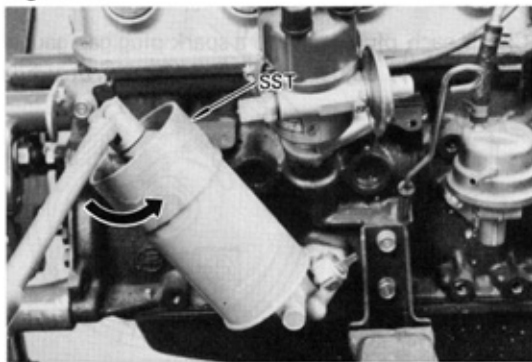
**F** : Specifications, Notes and Cautions are given in bold type so you won't miss them.

Fig. 2-13

**CHECK OIL QUALITY**

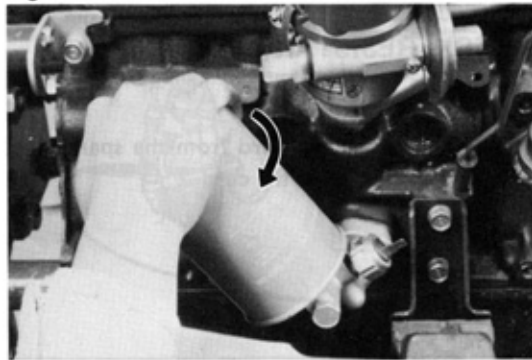
Check the oil for deterioration, entry of water, discoloring or thinning.

Fig. 2-14

**REPLACE OIL FILTER**

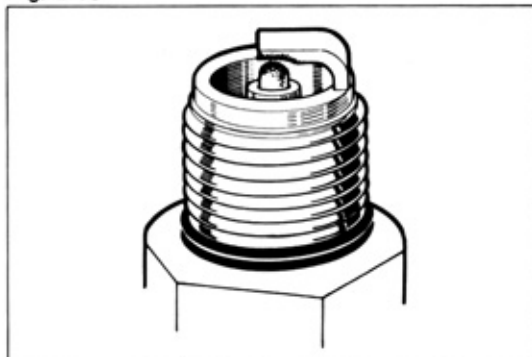
1. Remove the oil filter with SST.  
SST [09228-22020]

Fig. 2-15



2. To install, hand-tighten the oil filter firmly.
3. After starting the engine, check for oil leaks and recheck the oil level.

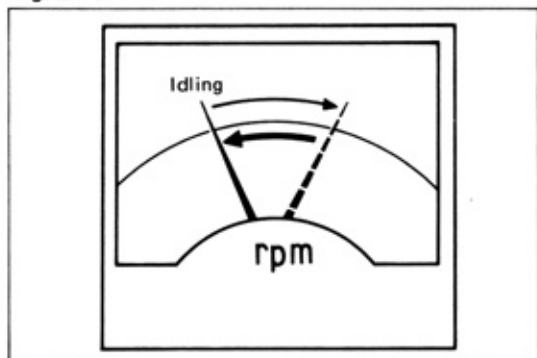
Fig. 2-16

**SPARK PLUG****VISUAL CHECK**

Check the spark plugs for the following:

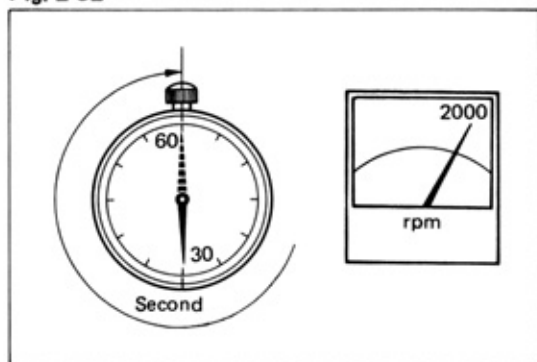
1. Cracks or other damage on the threads and insulator.
2. Electrode wear.
3. Damaged or deteriorated gaskets.
4. Burnt electrode or excess carbon deposits.

Fig. 2-51



8. Race the engine momentarily with the accelerator link to verify that the engine returns to specified rpm when released.

Fig. 2-52

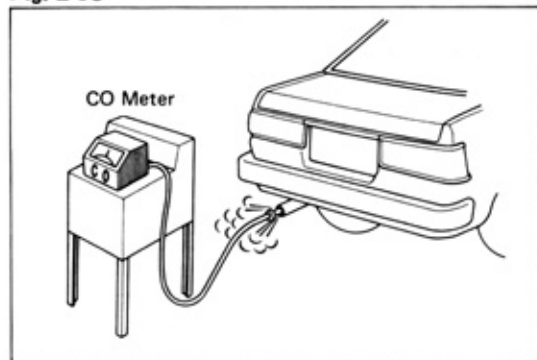


9. Measure the CO concentration in the exhaust gases with a CO meter.

- (1) Be sure to race the engine at about 2,000 rpm for 30 – 60 seconds.

- (2) To allow the concentration to stabilize, wait at least one minute before measuring but complete the measuring within three minutes.

Fig. 2-53

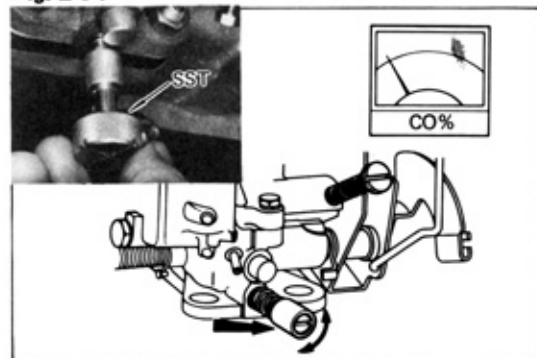


CO concentration

Engine model	%
2K (KP60 series), 3K-C, 3K-H & 4K	0.5 – 1.5
2K (KP36 series)	0.5 – 3.5
Australia 4K-C	1.0
Sweden 4K-C	0.3 – 2.0

- (3) If the concentration exceeds the specified value, tighten the idle mixture adjusting screw little by little until the concentration is within the specified value.

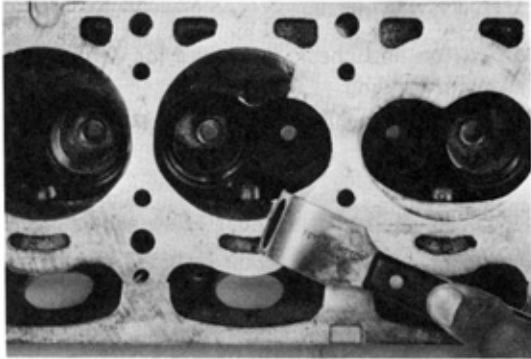
Fig. 2-54



– Note –

1. When the idle mixture adjusting screw is tightened, there will be a point where the engine speed drops rapidly. Further adjustment must not be attempted by screwing in beyond this point.
2. Allowable engine idle speed is  $\pm 50$  rpm of the specified speed.

Fig. 3-9



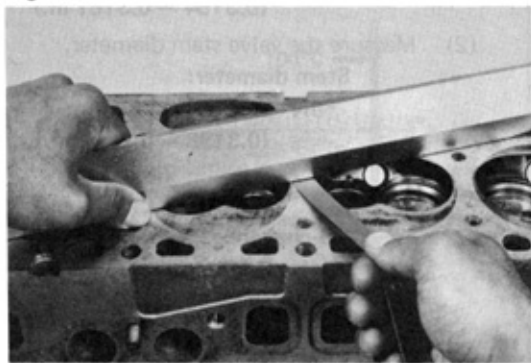
## INSPECTION &amp; REPAIR

## Cylinder Head

1. Clean and check the cylinder head for cracks or scoring.



Fig. 3-10

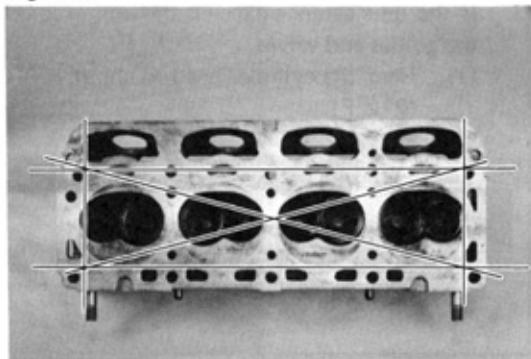


2. Using a precision straight edge and thickness gauge, check cylinder head underside surface for warpage.

**Underside surface warpage limit:**

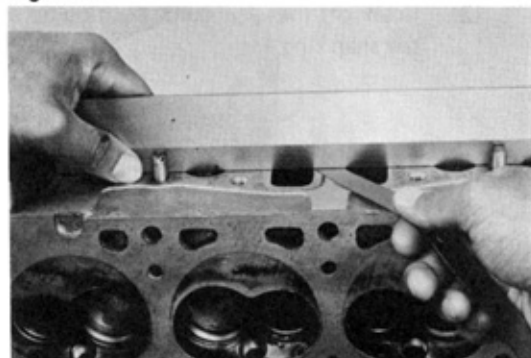
**0.05 mm  
(0.0020 in.)**

Fig. 3-11



3. Check surfaces along the indicated lines for warpage.

Fig. 3-12



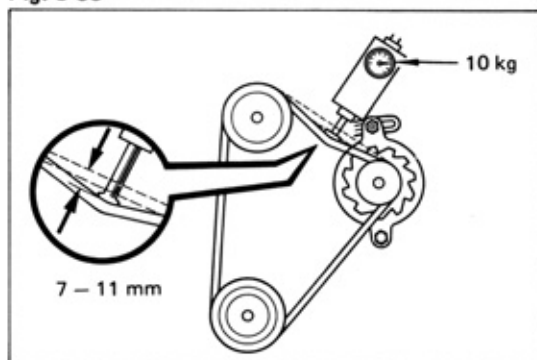
4. Inspect the manifold mounting surface for warpage.

**Manifold mounting surface  
warpage limit: 0.1 mm  
(0.004 in.)**

5. If the warpage exceeds the limit, either machine flatten or replace the cylinder head.

**Maximum reface limit: 0.3 mm  
(0.012 in.)**

Fig. 3-88

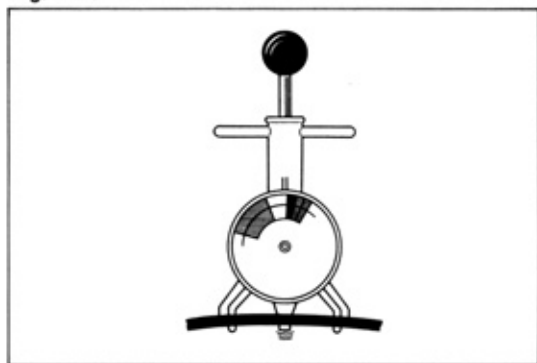


Adjust the V belt deflection.  
(Except USA & Canada)

**Drive belt deflection:**

**7 – 11 mm at 10 kg**  
**(0.28 – 0.43 in.) (22 lb)**

Fig. 3-89



(USA & Canada)

Using a borroughs tension gauge BT-33-7,  
adjust the belt deflection.

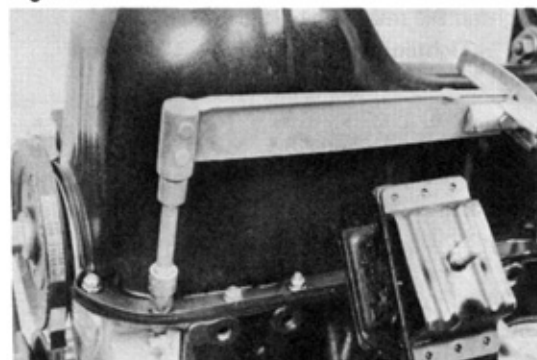
**Drive belt deflection: 80 ± 20 lbs**  
**(Used belt)**

Fig. 3-90



Apply liquid sealer to the cylinder block and  
chain cover as shown in the figure.

Fig. 3-91



Install the oil pan.

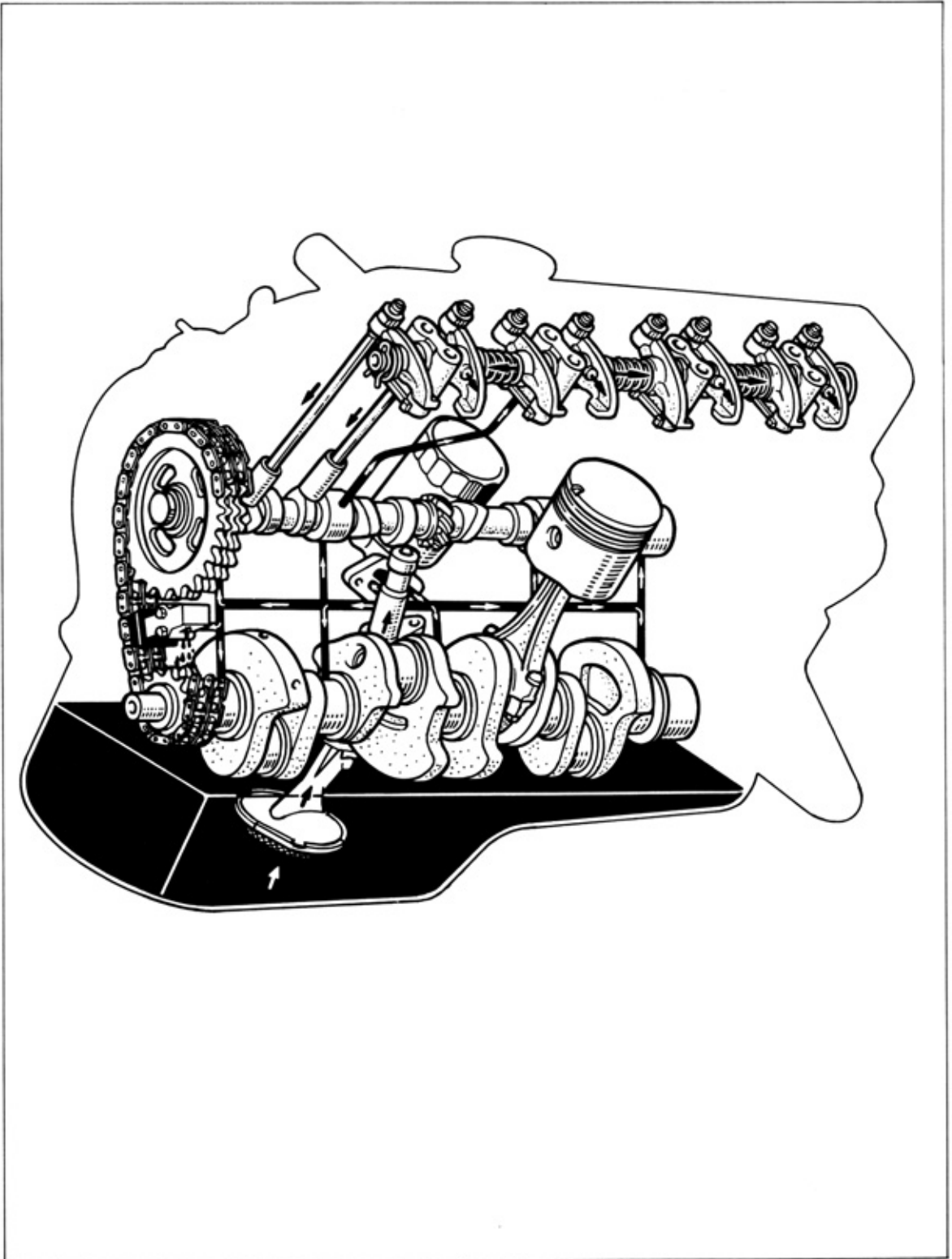
**Tightening torque:**

**Standard bolt 0.2 – 0.4 kg-m**  
**(18 – 34 in.-lb)**

**Step bolt 0.3 – 0.7 kg-m**  
**(27 – 60 in.-lb)**

## LUBRICATION SYSTEM CIRCUIT

Fig. 4-1



- Disassemble the parts in the numerical order shown in the figure.

Fig. 6-9

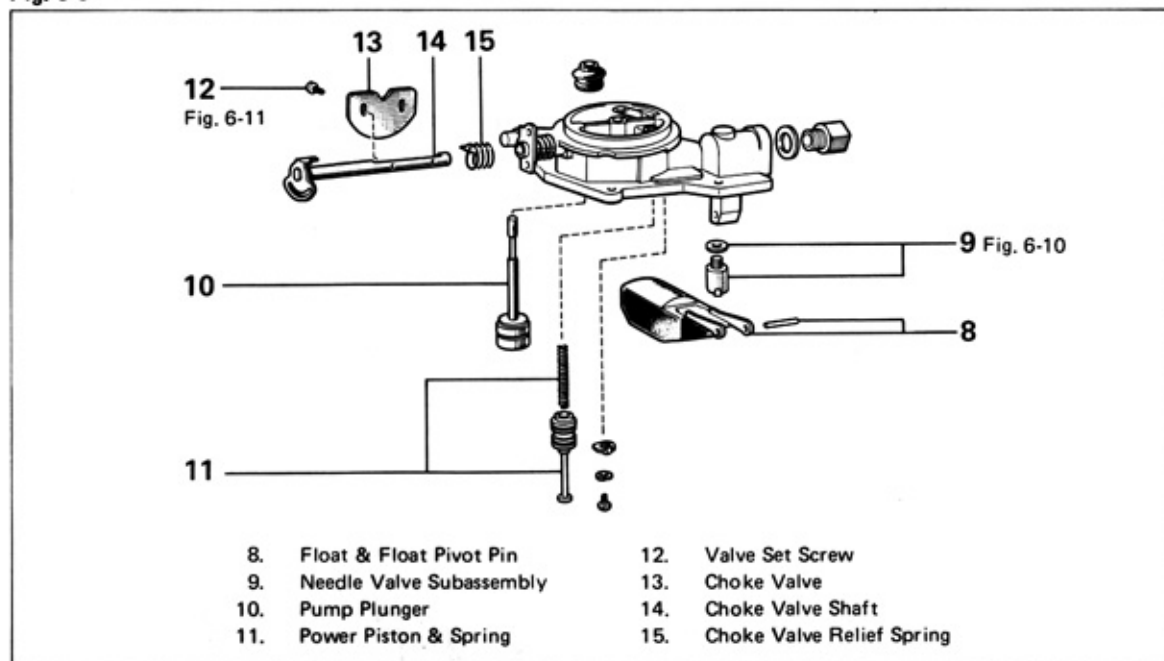
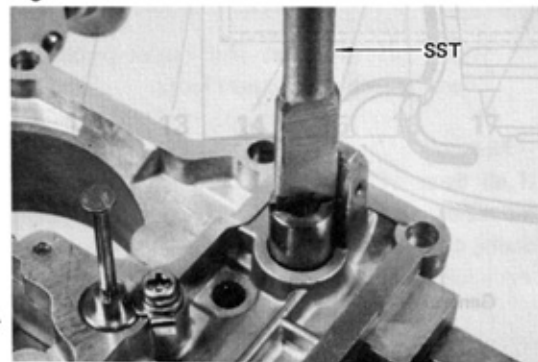
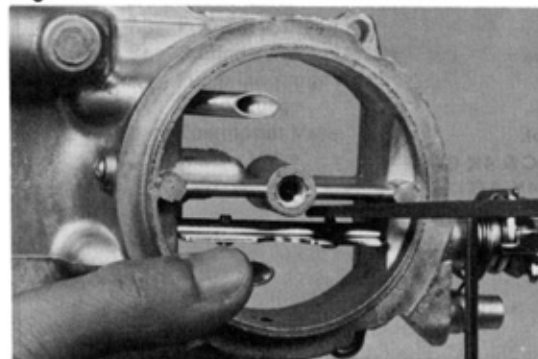


Fig. 6-10



Remove the needle valve seat with SST.  
 SST [09860-11011]

Fig. 6-11



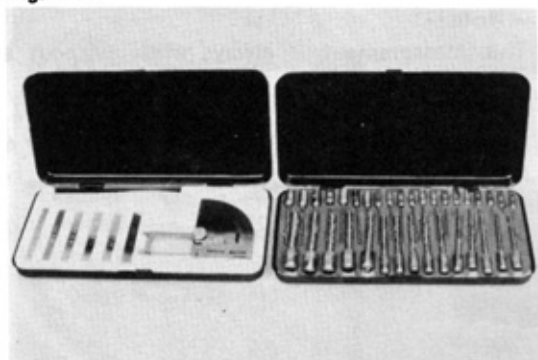
To remove choke valve, file off the end of the set screws.

— Note —

Do this only if it is necessary to replace the choke valve or shaft.



Fig. 6-53

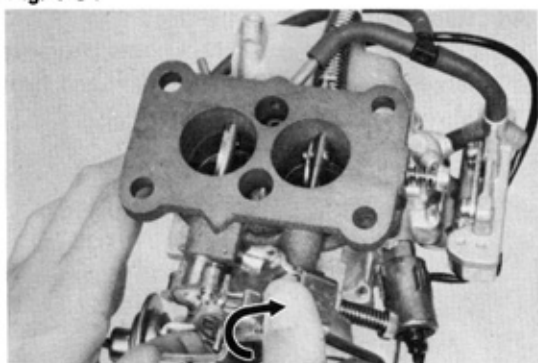
**ADJUSTMENT**

Use SST to make adjustments.

SST [09240-00014]

[09240-00020]

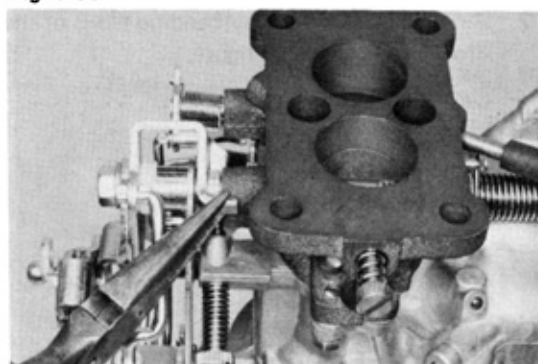
Fig. 6-54



1. Primary throttle valve opening
  - (1) Fully open the primary throttle valve.
  - (2) Check the primary throttle valve opening angle.

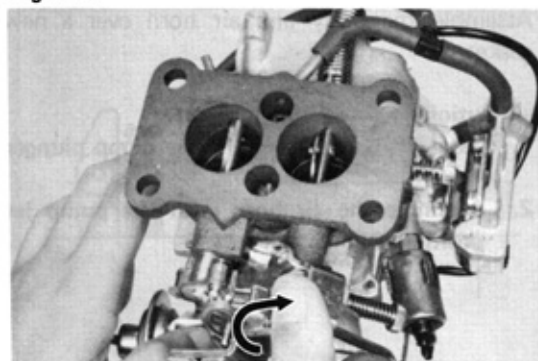
**Opening angle: 90°**

Fig. 6-55



- (3) Adjust by bending the throttle lever stopper.

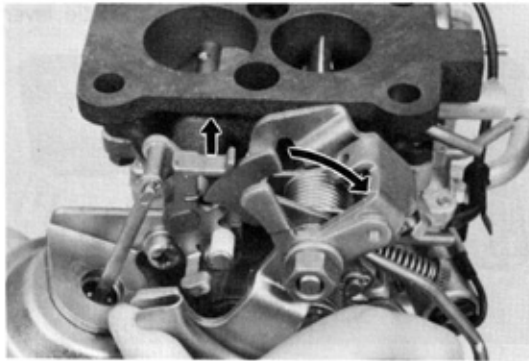
Fig. 6-56



2. Secondary throttle valve opening
  - (1) Fully open the primary throttle valve.
  - (2) Check the secondary throttle valve opening angle.

**Opening angle: 90°**

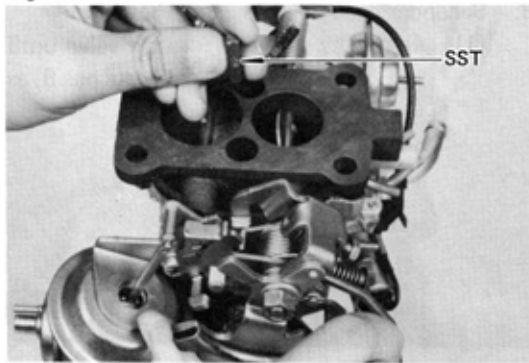
Fig. 6-106



## 4. Kick-up

- (1) Open the primary throttle valve until the kick arm slightly opens the secondary throttle valve.

Fig. 6-107

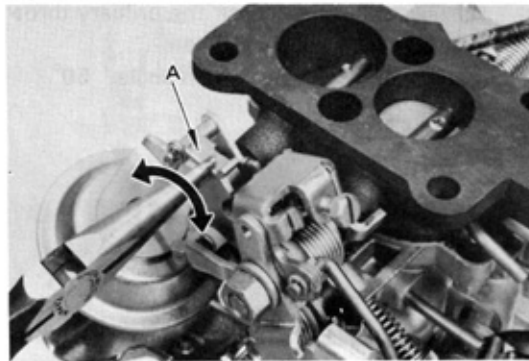


- (2) Check the clearance between the secondary throttle valve and body.

**Kick-up clearance :**

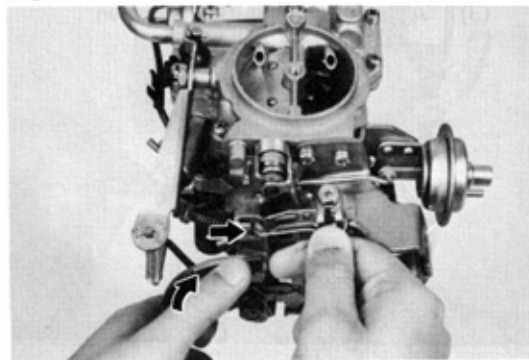
<b>KP61 Series</b>	<b>0.22 mm</b> <b>(0.0087 in.)</b>
<b>KM20 Series</b>	<b>0.32 mm</b> <b>(0.0126 in.)</b>

Fig. 6-108



- (3) Adjust by bending A, as shown.

Fig. 6-109

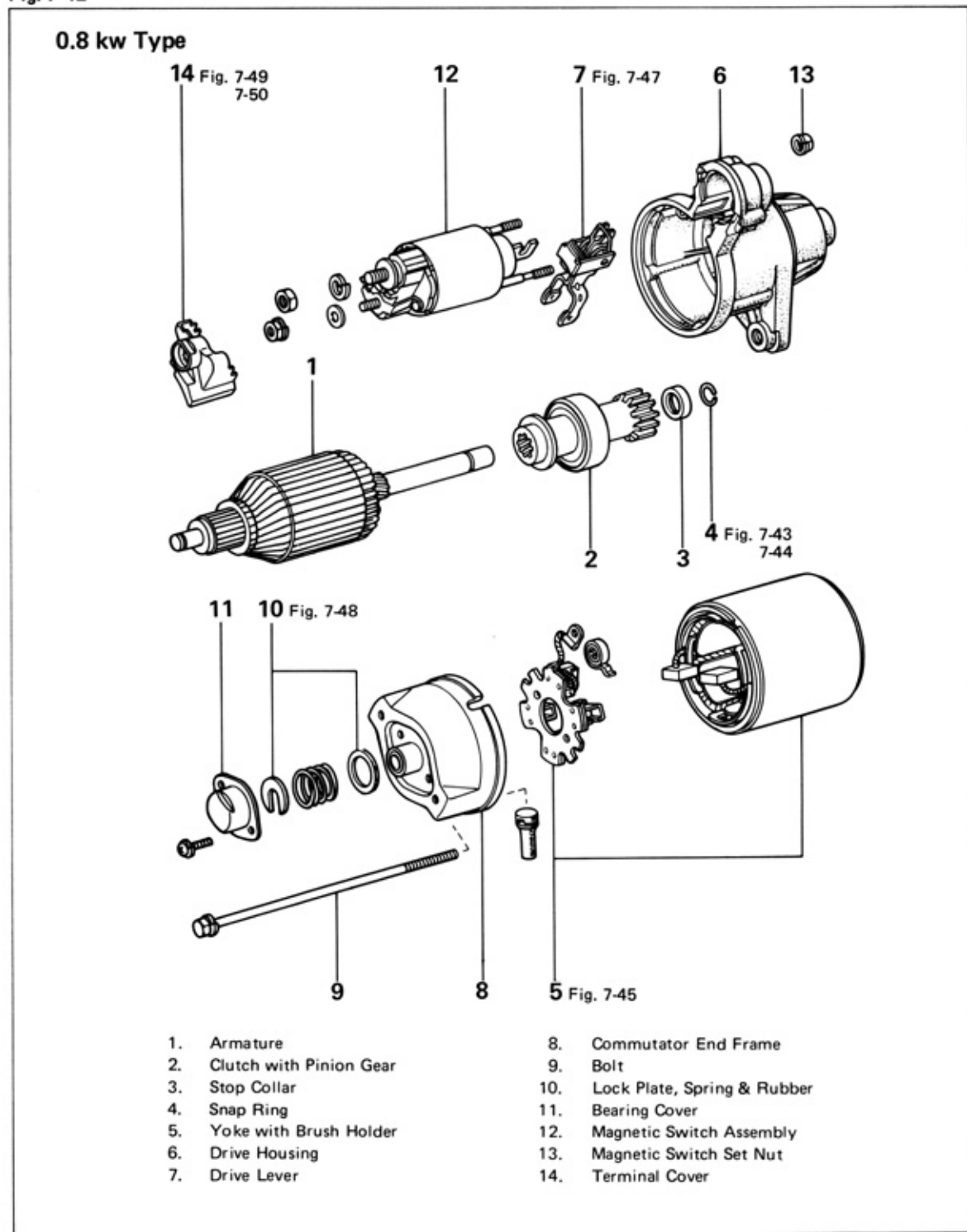


## 5. Fast idle

- (1) Fully close the choke valve by turning the choke shaft lever.
- (2) Set the throttle shaft lever to the fast idle cam.

Assemble the parts in the numerical order shown in the figure.

Fig. 7-42



## ASSEMBLY

— Note —

When assembling, lubricate the bearings and gears with high temperature grease.

Assemble the parts in the numerical order shown in the figure.

Fig. 7-86

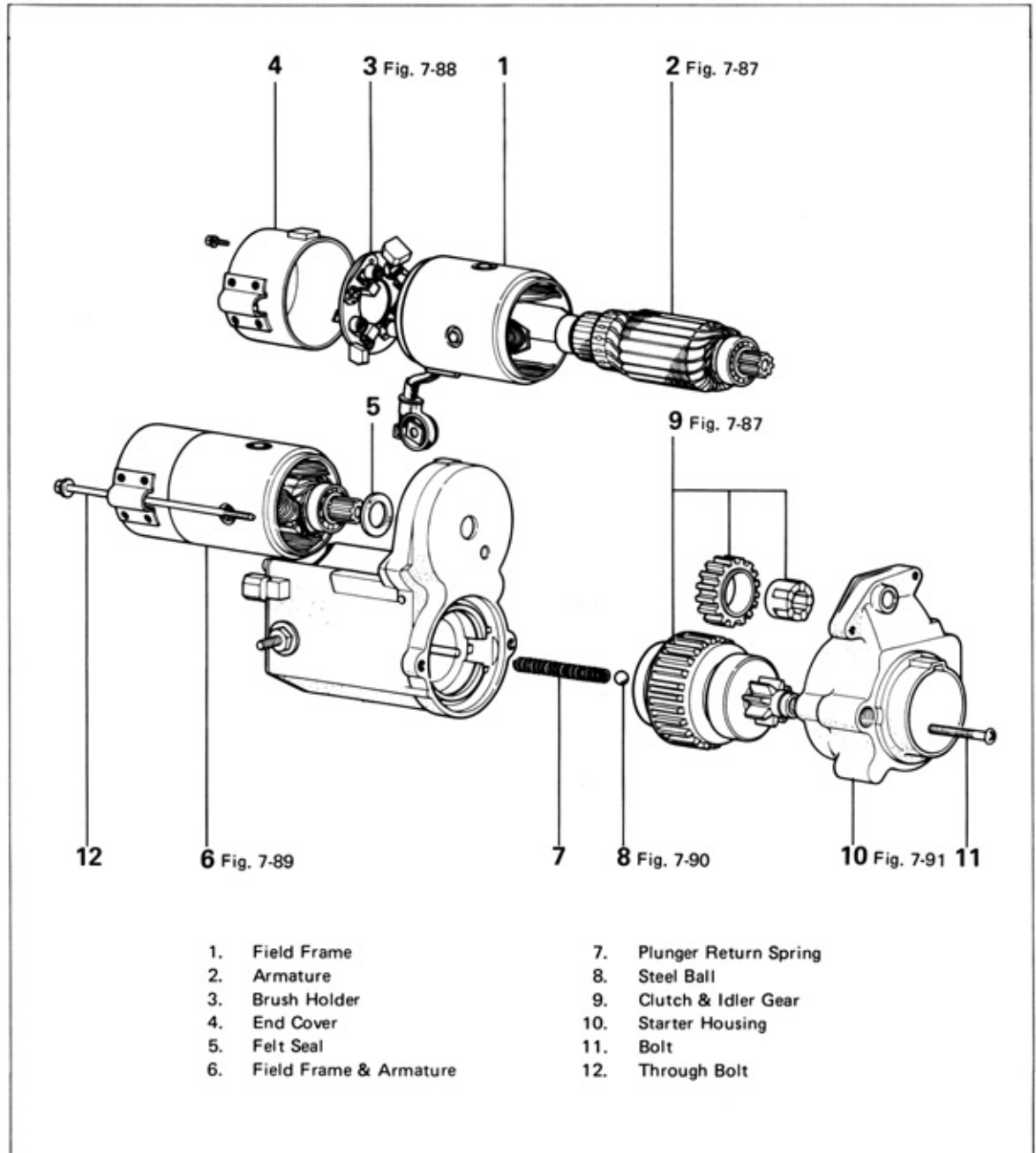
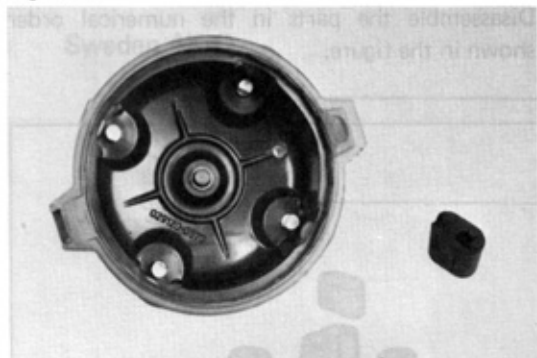


Fig. 8-21

**INSPECTION & REPAIR****Cap**

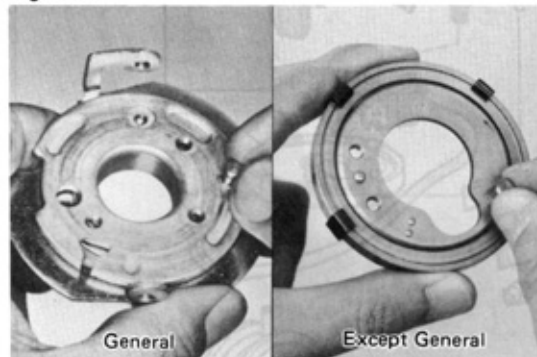
Inspect for cracks, carbon tracks, burnt or corroded terminals and check the center contact for wear.

Fig. 8-22

**Rotor**

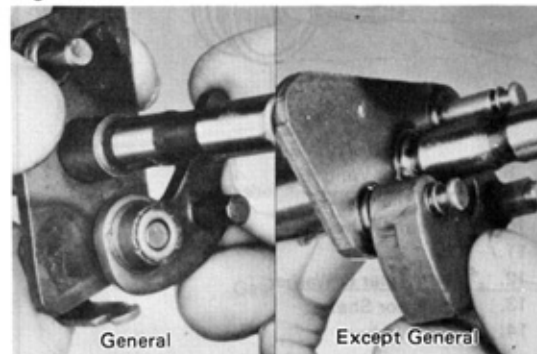
Inspect for cracks, carbon tracks, burnt or corroded terminals.

Fig. 8-23

**Breaker Plate**

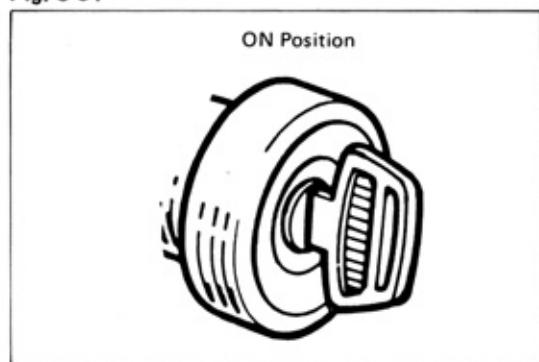
Check the breaker plate for smooth rotation.

Fig. 8-24

**Governor Weight & Pin**

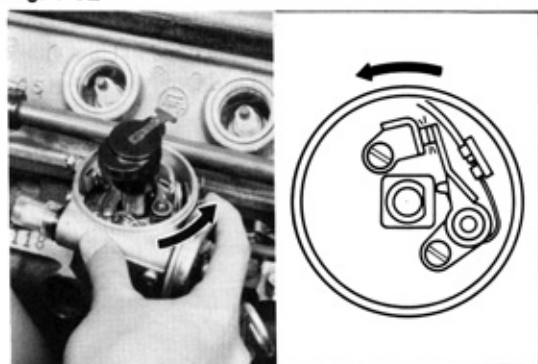
Check the fitting portions of the governor weights with support pins for binding.

Fig. 8-51



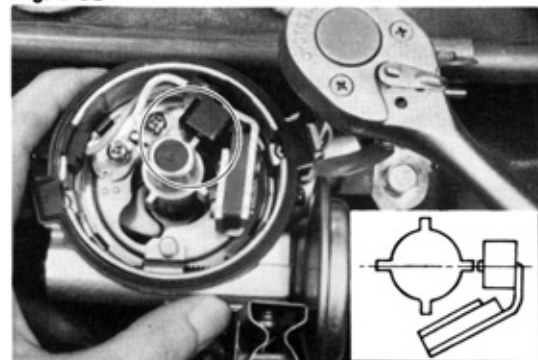
5. Turn ignition switch to the ON position. Do not turn the starter motor.

Fig. 8-52



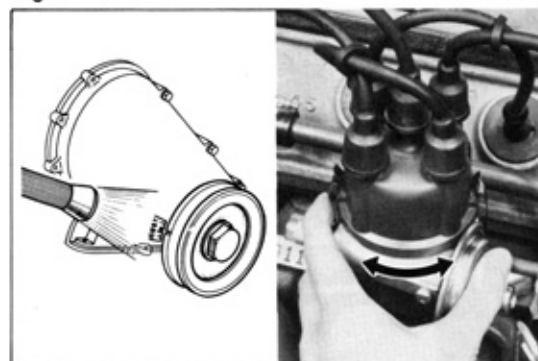
6. Rotate the distributor body counterclockwise until there is a spark between the points, and tighten the clamp bolt in that position. (Except USA & Canada)

Fig. 8-53



- Adjust the housing by moving it so that the signal rotor will just begin to cut the lines of the flux, and then tighten the set bolt. (USA & Canada)

Fig. 8-54



7. Check ignition timing during idling.

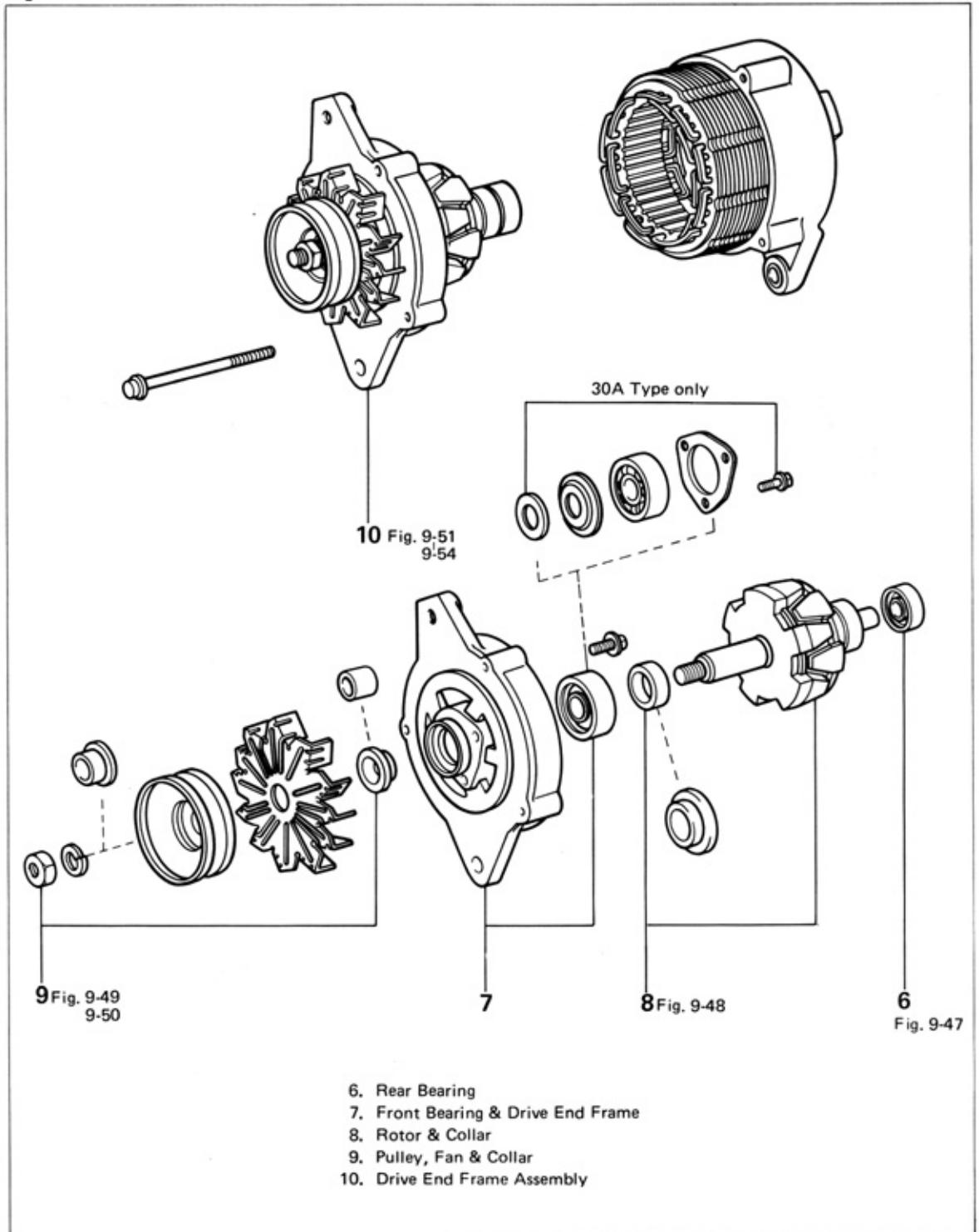
**Ignition timing (BTDC):**

**8° at idle speed**

If necessary, align the timing marks by turning the distributor body.

2. Assemble the parts in the numerical order shown in the figure.

Fig. 9-43



6. Rear Bearing
7. Front Bearing & Drive End Frame
8. Rotor & Collar
9. Pulley, Fan & Collar
10. Drive End Frame Assembly