

Timing chain fitting instructions

Mitsubishi 4M40 2.8 TD | Removable-link replacement chain

These are my practical notes for feeding a replacement chain through using the old chain. This can save dismantling, but it is a job for someone with sound mechanical experience. Read the whole sheet before starting, and please ask if anything is unclear.

Before you start

This method applies only to a replacement chain and joining link supplied for this purpose. Confirm that the chain matches your engine and that you have the correct link-fitting instructions. Use the Mitsubishi 4M40 workshop manual alongside this sheet for tightening torques, timing checks and component removal/refitting procedures.

Work with the engine stopped and prevent accidental starting. Turn the engine by hand, never with the starter during this job. Clockwise below means viewed from the crankshaft-pulley end of the engine. Use clockwise rotation for feeding the chain and for the final checks.

1. Remove the rocker cover.

Clean around the cover first so dirt cannot fall into the engine. Keep the removed parts and fasteners together.

2. Establish the starting timing position.

With the old chain still fitted and tensioned, turn the crankshaft clockwise to No. 1 cylinder at top dead centre (TDC) on its compression stroke. Check the crankshaft pulley reference and the camshaft compression-stroke reference against the 4M40 manual. Do not rely on a pulley mark alone.

A note about the crankshaft pulley: The pulley has a rubber damping ring between its inner hub and outer section. If the rubber deteriorates or its bond fails, the outer section can slip relative to the hub, moving the timing mark out of position. The pulley mark can then give a false indication of TDC, so do not rely on it alone.

If the marks do not agree: stop and establish the cause before splitting the chain. Confirm true TDC independently using the appropriate workshop procedure. A pulley that has slipped or separated needs replacing; adding a new timing mark does not repair it. Once timing is confirmed, record the positions with clear photographs and reference marks.

3. Remove the tensioner before fitting the new chain.

Remove the tensioner before splitting the old chain or feeding in the replacement. Follow the 4M40 removal and reset procedure: retract and latch the plunger correctly, without forcing it against the ratchet. Leave the tensioner off until the new chain is fitted and joined in step 8. Keep the chain engaged and under control; do not allow the camshaft and crankshaft to move independently.

4. Split the old chain.

Before removing the link, hold or secure both sides so neither end can drop into the engine. Protect the opening with clean, lint-free material. Use a suitable chain splitter and retain all loose pieces. Do not allow metal particles, pins or link plates into the engine. If the chain cannot be opened cleanly with the tools available, stop and arrange suitable equipment.

5. Secure the open chain ends.

Keep both ends secured while preparing to connect the new chain. A suitable tether is a useful backup, but keep it clear of moving parts. Account for all protective material and loose items, and keep control of both chain ends when removing any temporary restraint to feed the chain through.

My tip: Have a second person ready before feeding the chain. It is much easier when one person turns the crank and the other controls the chain.

Feeding the chain and finishing

4M40 2.8 TD | Keep the chain engaged throughout

6. Connect the new chain to the old one.

Check that the tensioner has been removed as described in step 3. Use the appropriate joining arrangement for the supplied chain. Make sure the temporary connection is secure and can pass through without catching. Keep control of the outgoing old chain and the incoming new chain at all times.

7. Feed the new chain through slowly.

Turn the crankshaft clockwise by hand while your helper guides the chain. Keep it seated on the camshaft sprocket so it cannot lift or jump a tooth. The camshaft can move suddenly under valve-spring pressure, so work slowly and keep fingers clear of the sprocket and chain.

Stop immediately if the chain lifts, catches, becomes uncontrolled or you feel unexpected resistance. Do not force the crank round. If either chain end drops inside, retrieve it properly before doing anything else; further dismantling may be needed.

8. Join the two ends of the new chain.

When the new chain has been fed through and its ends meet at the top, secure both ends before disconnecting the old chain. Fit the correct final joining link exactly as its supplier specifies. Check the retaining arrangement is fully seated and the joint moves freely. Do not substitute another link or guess the clip orientation.

9. Refit and release the tensioner.

Install the correctly reset tensioner using the specified gasket, tightening torque and release procedure in the 4M40 manual. Confirm it has released and is controlling the chain before carrying out the final rotation check. Do not rely on hearing a click alone.

10. Check before closing up.

Remove all temporary tethers, protective material and loose items. With the chain joined and tensioned, turn the crankshaft slowly by hand in its normal direction through two complete revolutions, returning to No. 1 compression TDC. Stop at any unexpected resistance. Recheck the crankshaft and camshaft timing references, the joining link and the chain tension. Free rotation alone does not prove the timing is correct.

11. Refit the rocker cover.

Only close up when the timing and joining-link checks are satisfactory. Refit the cover and any other removed parts with the correct seals and tightening torques. Complete the workshop-manual checks before starting the engine.

If the timing has been lost

Do not start the engine or try to force it past resistance. Resetting the valve timing is a separate repair requiring the correct 4M40 procedure. Do not simply remove the camshaft and turn the crank independently. Contact me or a mechanic familiar with this engine before continuing.

Need a hand?

If you need help or advice, please **WhatsApp George on 07910 869030**. Send clear photographs of the part or timing references you are unsure about. I can send fitting information, photographs and instructions directly by WhatsApp. You can also email **George@pajeroshop.com**.

George
Pajero Shop

Technical reference: Mitsubishi 4M4 Engine Workshop Manual, PWEE9409 series, 4M40 sections. These personal fitting notes supplement the workshop manual and the instructions for the supplied joining link.