• **GENERAL:** Good standard shop practices and safety precautions should be observed at all times to avoid injury to personnel and damage to equipment.

• This discussion is not intended to replace the information contained in the Teledyne Service Support manual and the Teledyne manuals must be used while actual maintenance is performed on the magneto.
Recommended Maintenance Intervals

• First 25 hour: Inspect Contact Assemblies
• 100 Hour: Inspect Contact Assemblies
• 500 Hour: Inspect IAW TCM 500Hr. Check
• TCM Recommends 4 year overhaul intervals
Description and Specs.

• The magneto used on F series Enstrom helicopters is the D4LN-3200 manufactured by Teledyne Continental Motors, Aircraft Products, Mobile AL.
• D - Dual type ignition unit
• 4 - Number of engine cylinders
• L - Direction of rotation from the drive end
• N - Manufactured by TCM
• 3200 - Shower of sparks starting system
Maintenance Procedures

• Inspection of contact assemblies.
• Adjust contact gap & timing / install new contacts.
• Install magneto and time to engine.
Inspection of contact assemblies

- Remove cover assembly
- Turn engine fan until points are open
- Inspect contacts for condition
- Inspect cam followers for condition
- Check for point gap.
Contact condition

1. If gap is less than 0.012, remove magneto and adjust or replace points.

2. Inspect cam follower carefully to determine the cause of the wear.

3. If the contact surface shows evidence of burning, and if the cam follower shows evidence of melting where it pushes on the contact spring, the capacitor needs replacement.

4. If the cam follower shows excessive wear or melting where it contacts the cam, the causes can be:
   • Lack of lubrication on felt.
   • Problems with cam.
   • Bearing in distributor block running hot.
Replacing Contacts

- Part numbers:
  - Right side contact: 10-382585
  - Left side contact: 10-400184
  - Capacitor: 10-400575

- Begin by removing both sets of contact points, and both cams.
- The bottom cam can be removed by inserting the blade of a flat screw driver between the bearing and the cam, and prying it off.
Install Right Mag Points

• Install the bottom cam with an appropriate screw and washer so that the points will be resting on the cam lobe.

• Install the right magneto points and set the gap to .018 (+0 -.002)

• Use a business card to clean the oil from the contact surfaces and wipe excess oil from the cam followers with a clean, lint free cloth.
Set Internal Timing

- Position the rotating magnet so that the ‘C’ is adjacent to the mark cast into the inside of the housing on the top of the magneto, the mag is in the neutral position, and the two chamfered teeth are visible in the windows in the ends of the magneto.
• Loosen the cam from its tapered shaft and rotate the cam until the points open when the L is adjacent the marker on the inside of the case.

• Snug the cam retaining screw so that the cam will not rotate on the shaft, and install the retard cam and the left magneto contacts.

• Position left magneto contacts and the cam so that both the main and retard points are open.
Time the Left Magneto Contacts

• Check the gap on both the main and retard contact assembly. Both contact gaps must be .016 plus or minus .004.
• If they are not, carefully bend the steel upright-frame of the contact assembly until both gaps are within limits.
• Then adjust the main contactor so that it opens at the same time as the right magneto points.
Set the engine at the firing position for #1 cylinder

• Remove the bottom spark plug from #1 cylinder.
• Pull the engine through in the direction of rotation until compression is felt at the spark plug hole.
• Set the flywheel to the 20 degree advance position
Set the Magneto at the Firing Position for #1 Cylinder

• Set the rotating magnet so the C is at the pointer inside the magneto, the 2 chamfered teeth are in the windows at the two ends of the magneto, and the magneto is in the neutral position.

• Install the plugs in the housing. The vented plugs must not be installed in the top position. Install them in the side plug positions.
Check the Alignment of the Drive Gear

- On older magnetos, the drive adapter will be horizontal while on newer mags, it is vertical.
- Check that the alignment of the gear adapter in the engine is at the same relative angle as the one on the mag.
- Occasionally the gear adapter in the engine comes out while removing the magneto.
- The gear adapter has an odd number of gear teeth and if the alignment is just a little off, it can be pulled out and reinstalled 180 degrees off which can help align the gear adapter to the magneto.
Install the Magneto on to the Engine

- Install the magneto on the engine.
- Install the hold down clamps, washers and nuts.
- Tighten the nuts so that they are snug, but so the magneto can still be swiveled.

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Magneto to Engine Timing

- Hook up the timing light.
- Adjust the magneto so that the first set of contacts opens right at 21.5 degrees BTDC.
- Tolerance limit is +.5 degrees.
- Torque the hold down nuts to
Retard Timing

• Install the timing light onto the retard contactor.
• Electronic timing lights may require clipping the coil wire under the timing light lead to operate.
• Check that the retard points open ½ tooth on the ring gear after TDC.
• If the retard timing needs adjustment, loosen the cam securing screw and use your fingers, or a pair of snap-ring pliers to move the retard cam to the proper position.
Close it up

- Torque the slotted contact screws and the cam retention screw to 21-25 in lbs.
- Connect the coil wires to the contact terminals.
- Install the cover and torque corner screws to 30 – 35 in lbs.
- Look down into the retard ‘P’ lead socket and verify that the copper contactor is positioned so that the ‘P’ lead will make firm contact with it when it is inserted into the socket. Is possible to distort the copper contact with the cover while installing it.
- Install the ‘P’ leads.
- Check that the helicopter has been completely assembled and check the magneto operation.