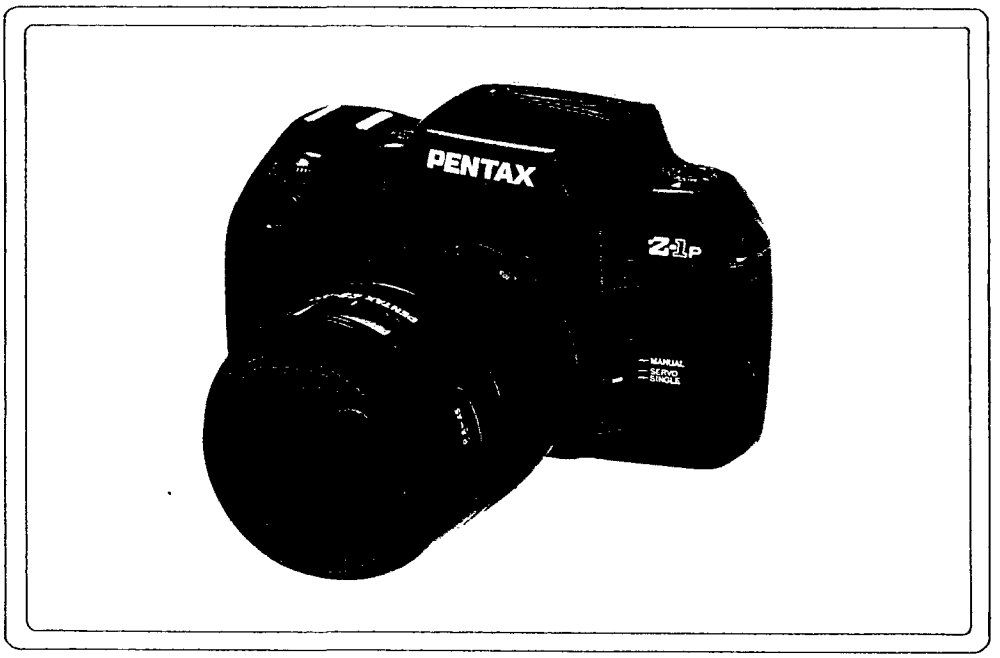
PENTAX®

Service Manual

ENGLISH

PENTAX Z-1P QUARTZ DATE



PRODUCT No. 27126 Z-1P QUARTZ DATE

PRODUCT No. 27121 PZ-1P
PRODUCT No. 27123 Z-1P

Service Engineering Section.
10:94 H.Y.

【Contents】

[Specifications]

Type: TTL autofocus, auto-exposure multi-mode 35mm SLR with built-in Retractable TTL Auto Flash (RTF).

Film: 35mm perforated cartridge film.

Image size: 24mm × 36mm. (13mm × 36mm in panorama mode.)

Lens mount: Pentax KAF2 bayonet mount. Compatible with KAF, KA and K mounts.

Usable lenses: (1) Pentax KAF2- and KAF-mount lenses for unconditional autofocus operation; (2) Pentax KA- and K-mount lenses for autofocus operation with AF adapter.

Power zoom system (with Pentax FA zoom lenses):
- Type: Power-assisted zooming by motor built in lens.
- Zoom speeds: 3 speeds, adjustable by zoom ring. (Maximum speed: approx. 0.8 sec. from wide angle to telephoto with FA Zoom 28mm-80mm lens.)
- Modes: (1) power zoom; (2) manual zoom; (3) auto zoom (Image-Size Tracking, Zoom Clip, Zoom Effect); (4) Auto lens retraction.

Focusing system:
- Type: TTL phase-matching system (with SAFOX II in AF sensor unit).
- Usable illumination range: EV–1~EV18 (at ISO100/m with 50mm f/1.4 lens).
- Modes: (1) AF-Single (with focus-lock function); (2) AF-Servo (with Predictive AF mode); (3) manual focus (selectable with switch on camera body).
- AF spotbeam (with RTF in pop-up position): automatic emission under low illumination (1m~6m).

Exposure control:
- Metering system: (1) TTL open-aperture eight-segment multi-pattern metering (coupled with lens and AF information); (2) spot metering; (3) center-weighted metering.
- Metering range: EV0~EV20 (at ISO100/m with 50mm f/1.4 lens).
- Modes: (1) Hyper Program; (2) Programmed AE; (3) Aperture-Priority AE; (4) Shutter-Priority AE; (5) Hyper Manual; (6) Manual Bulb; (7) TTL Program Auto Flash. Automatic exposure compensation provided with multi-pattern metering.
- Exposure compensation: ±4EV. (1/3EV or 1/2EV increment selectable with Pentax Function.)
- Memory lock: 5-second memory with ML button. (Memory extendable.)
- Auto-bracketing: 3 frames in order of proper/under/over exposures within range of ±4EV (1/3EV or 1/2EV increment selectable). Combination use with exposure compensation possible.
- Multiple exposure: 2~9 frames adjustable.

Shutter:
- Type: Electronically controlled vertical-run focal-plane shutter.
- Speeds: (1) auto: 1/8000 sec.~30 sec. stepless; (2) manual: 1/8000 sec.~30 sec. plus bulb; (3) flash sync: 1/250 sec. (slow-shutter-speed sync: 250 sec.~30 sec. plus bulb).
- Shutter lock: by turning main switch off.

Diaphragm control: Aperture-coupled mechanism (with FA, F and A lenses).

Viewfinder:
- Type: Pentaprism.
- Focusing screen: Interchangeable Natural-Bright-Matte focusing screen (panorama-spot-matte type as standard).
- Field of view: 92% vertically/horizontally.
- Magnification: 0.8X (with 50mm f/1.4 lens at infinity).

Viewfinder display:
- Type: multi-data LCD type with illuminator.
- Data: (1) in-focus; (2) shutter speed; (3) aperture; (4) accessory flash emission; (5) RTF emission; (6) flash emission compensation; (7) low-illumination warning; (8) non-applicable lens warning; (9) exposure compensation scale; (10) exposure compensation; (11) memory lock; (12) metering system (multi-pattern, spot, center-weighted); (13) panorama mode.

External information panel:
- Type: multi-data LCD type with EL (Electro-Luminescence) illuminator.
- Data: (1) exposure mode (Hyper Program, Programmed AE, Aperture-Priority AE, Shutter-Priority AE, Hyper Manual and Manual Bulb); (2) film loading, film advance/rewind and loading error warning); (3) Image-Size Tracking; (4) Zoom Clip; (5) Zoom Effect; (6) shutter speed; (7) aperture; (8) ISO film speed; (9) exposure compensation; (10) exposure compensation value; (11) exposure frame number; (12) low-battery warning; (13) RTF recharge; (14) low-illumination warning; (15) non-applicable lens warning; (16) metering mode (multi-segment, spot, center-weighted); (17) Pentax Functions; (18) self-timer; (19) multiple exposure; (20) trailing-shutter-curtain sync; (21) pre-flash emission (red-eye reduction); (22) flash emission compensation; (23) auto-bracketing; (24) TV direct dial; (25) AV direct dial; (26) motor drive mode.

Film handling:
- Loading: quick loading mechanism with automatic film advance to first frame.
- Advance/rewind: automatic. (Mid-roll rewind possible.)
- Advance modes: single-frame and consecutive (approx. 4 frames/sec.).

Film speed setting:
Automatic with DX-coded film (ISO25~ISO1000). Manual setting available (ISO6~ISO6400 in 1/3EV steps).

Built-in flash:
- Type: Retractable TTL auto flash (RTF).
- Guide number: 14 (at ISO100/m).
- Angle of coverage: 28mm wide-angle lens maximum.
- Others: (1) Emission adjustable in daylight sync and slow-shutter-speed sync; (2) flash bracketing; (3) flash emission compensation; (4) trailing-shutter-curtain sync; (5) pre-flash emission (red-eye reduction); (6) AF spotbeam projector built in.

Flash synchronization:
- Synchronization: with RTF via hotshoe.
- Sync speeds: 1/250 sec. set automatically with RTF or dedicated flash unit upon recharge completion.

Self-timer:
- Type: electronically controlled multi-mode self-timer.
- Modes: (1) normal (12-sec. delay); (2) 2-sec. delay; (3) triple-frame. Mid-operation cancellation possible.

Pentax Functions: 15 custom-programmable functions.

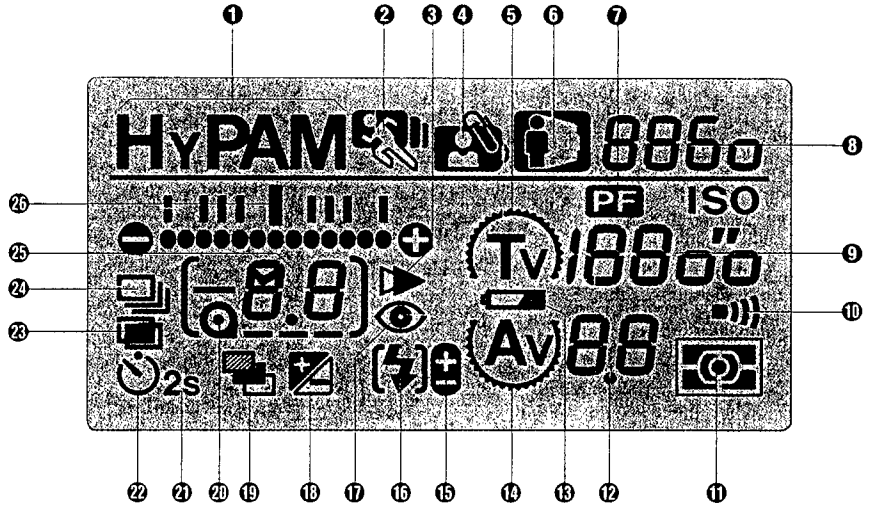
Main switch: (1) OFF; (2) "User" Position; (3) ON (full-speck position).

Power source: One 6V lithium battery (2CR5 type).

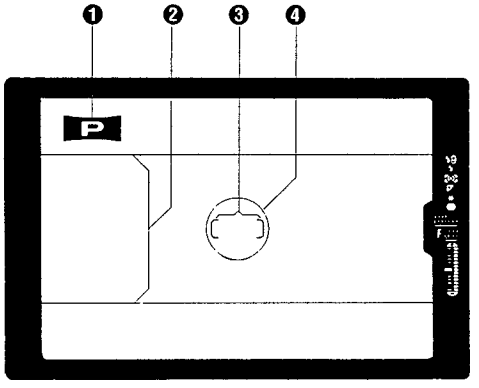
Dimensions: 152.0mm (W) × 95.5mm (H) × 74.0mm (D). (6.0" × 3.8" × 2.9")

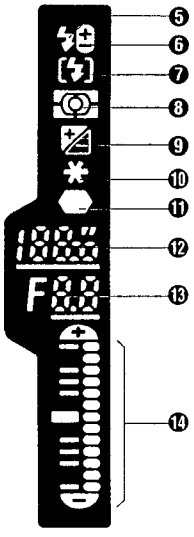
Weight: 650g (22.9 oz.) without lens and battery.

【LCD & Finder Indications】



❶ Exposure mode
❷ Image-Size Tracking
❸ Trailing-shutter-curtain sync flash
❹ Zoom Clip
❺ Tv direct dial
❻ Zoom Effect
❼ Pentax Functions
❽ ISO film speed
❾ Tv value (shutter speed)
❿ PCV audible signal
⓫ Multi-segment metering
⓬ Aa value (aperture)
⓭ Battery exhaustion warning
⓮ Rred-eye reduction flash
⓯ Exposure compensation with flash
⓰ Built-in RTF flash information
⓱ Pre-flash emission
⓲ Exposure compensation
⓳ Auto-bracketing
⓴ Film status
㉑ Self-timer with 2-sec. delay
㉒ Self-timer with 12-sec. delay
㉓ Multi-exposure
㉔ Motor drive mode
㉕ Film counter/multi-exposure counter/exposure compensation/ exposure compensation with flash/ auto-braketing compensation value range
㉖ Exposure compensation scale/ bar graph





❶ Panorama mode
❷ Panorama frame
❸ Autofocus frame
❹ Spot metering frame
❺ Accessory flash information
❻ Exposure compensation with flash
❼ Built-in RTF flash information
❽ Metering mode
❾ Exposure compensation
❿ Memory lock
⓫ In-focus
⓬ Tv value (shutter speed)
⓭ Av value (aperture)
⓮ Exposure compensation scale/ bar graph

【Disassembly & Assembly procedure】

Outline:

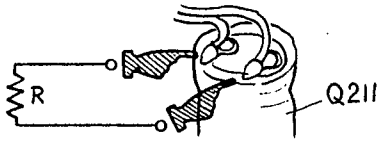
Disassembly and assembly procedures for Z-1P are almost the same as Z-1(27030). Functions of panorama, mirror seat and related parts are almost the same as Z-20P and Z-50P.

The only exclusive service works and adjustments for Z-1P are mentioned below.

1.Discharge of the Main capacitor (Q211)

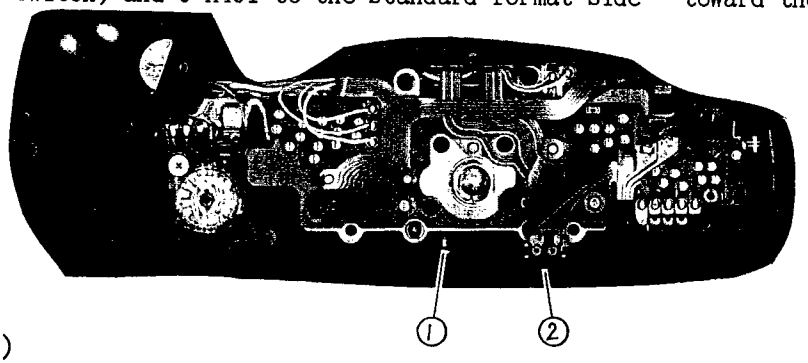
Discharge at the terminals of the main capacitor(Q211), not at the flash relay P.C.-board. Not the same way as Z-1.

At this time, take utmost care of short-circuit with other parts such as TV brush.



2.Installation of the Bottom cover assy.(O-A401)

Before installing O-A401, set panorama select levers that located ①O-E000(Shutter block), ②I11(P select switch) and O-A401 to the standard format side - toward the battery chamber side.

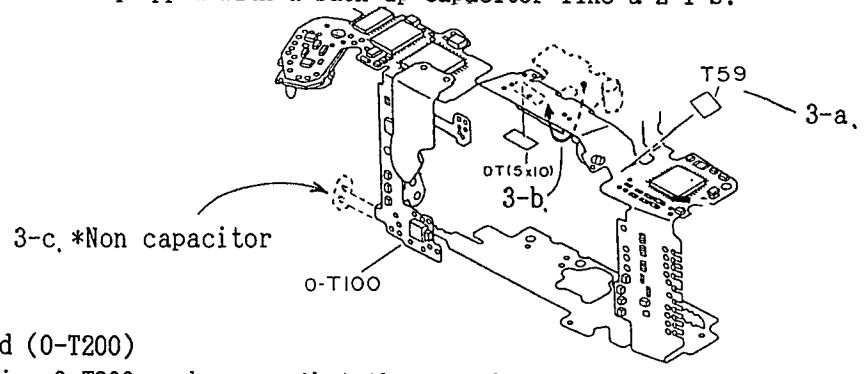


3.Main P.C.board (O-T100)

3-a. Stick an insulation tape(T59: size 7x7) on O-T100 as shown in the figure below.

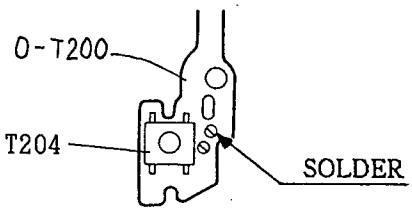
3-b. Fold over the flexible p.c.board as indicated by 3-b in the figure and put together with a double-stick tape(DT 5x10) as shown in the figure.

3-c. O-T100 is not equipped with a back-up capacitor like a Z-1's.



4.LCD P.C.board (O-T200)

When replacing O-T200, make sure that the open land near by T204(Release SW) as indicated by the arrow mark should be soldered and make a short as shown in the figure below.



5. Installation of the Mirror seat assy.(O-B52)

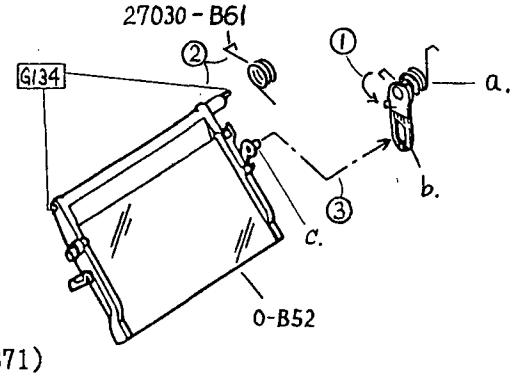
This mechanism is the same as Z-20P and Z-50P. The 2nd mirror actuating spring(a) and the actuating lever(b) is already assembled with the mirror housing plate assy.

5-1. Hook the spring(a) to the lever(b). ①

5-2. Apply grease(G134) onto the shafts of O-B52, and install B61(1st mirror spring) to O-B52. ②

5-3. Setting the driving pin(c) of the 2nd mirror on O-B52 into the hole of the lever(b), install O-B52 to the Mirror housing plate assy. ③

5-4. The next following procedures are the same way as Z-1(27030).



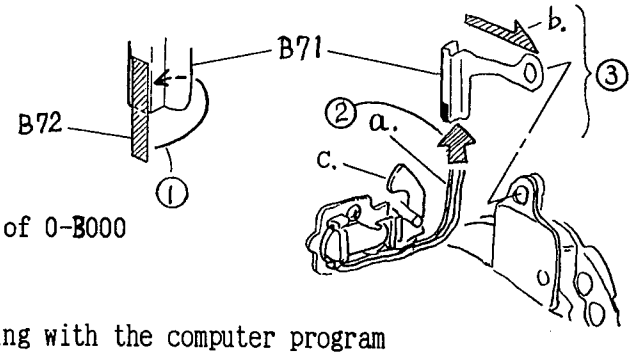
6. Installation of the Lead wire holder (B71)

6-1. Put on B72(Holder tape: insulation tape 6x1.4) so that the edge of B71 is covered by the tape. ①

6-2. Insert two lead wires(a) of the Release magnet into B71, and then arrange lead wires of the AF motor neatly.

6-3. Set B71 in the vertical position possible by pushing toward(b) direction, and install it with CNL-E 2.0x4.0. Then apply screw lock agent to the screw.

6-4. Make sure that there is a clearance of 0.5mm or more between the release lever(c) and B71, and the lever should not touch to B71 while moving.



Bottom view of O-B000

7. Adjustment and checking with the computer program

7-a. BATTERY CHECKING - Adjustment of battery check level

Set the regulated DC power supply to 3.50V and follow the monitor screen's instruction. (For Z-1(27030), this level is 3.4V.)

7-b. TTL QUENCH SIGNAL ADJUSTMENT

Set the panorama select lever of the shutter block to the standard format side - toward the battery chamber side - before adjustment starts.

7-c. DATE-SEAL OF SHUTTER BLOCK - correction data of the high shutter speed

At the manufacturing process, if high shutter speed (1/8000-1/4000 sec.) is slightly out of tolerance, it will be adjusted by the computer program automatically.
In this case, in order to identify that the high shutter speed has been corrected by the program, a seal of correction data is put on C102(Wind-on mech. block B).
- C102 is a black plastic plate which is installed with the film pulse gear on the bottom of the body. (Continued)

For servicing of Z-1P that has a data-seal, in case of 0-T100(Main P.C.board) or 0-E000(Shutter block) was replaced, the following adjustments with a computer are required;

1. When replaced 0-T100, input original data (see the data-seal) to the new 0-T100.
2. When replaced 0-E000, clear the original data from the 0-T100 being installed, and remove the data-seal from the body.

To do above adjustments, follow a monitor screen's instruction as the same way of the other AF camera adjustment with the computer.
Use the program software "CUSTOM 10 Ver.2.1" or later version.
Program software flow chart - from Start to Main menu - is shown in page ?.

8.Confirmation of panorama mechanism

Set the body to the panorama format, and confirm the "P" indicator is lighting up in the upper left of the view-finder while depressing the shutter release button halfway. Open the back cover, and make sure that the top and bottom panorama curtains come out in the aperture of body.

【Testers, Jigs and Tools for Z-1P】

Exclusively used for Z-1P

Order Code No.	Description
-----	Programmed software for Z-1P (Note: Connection between the body and the interface is the same way as Z-1.)

Others (used in common with Z-1)

Refer to the service manual of Z-1(27030).

【Consumption Current】

1. Power switch OFF	50μA or less
2. Power switch ON with Power zoom lens	220μA or less
〃 ON without Power zoom lens or lens	160μA or less
3. Metering "P" panorama display OFF	160mA or less
〃 "P" display ON and less than EV10	170mA or less
〃 "P" display ON and more than EV10	190mA or less
4. When AF motor is operating (average)	520mA or less
5. When film is winding (average)	1,500mA or less
6. When film is rewinding	550mA or less

※ Using a regulated DC power supply (5.5±0.05V, 3A or more)

【Program Software Flow Chart】

* From Start to Main menu *