

COMBEX

DX-907

DENTAL X-RAY **OPERATOR'S MANUAL**

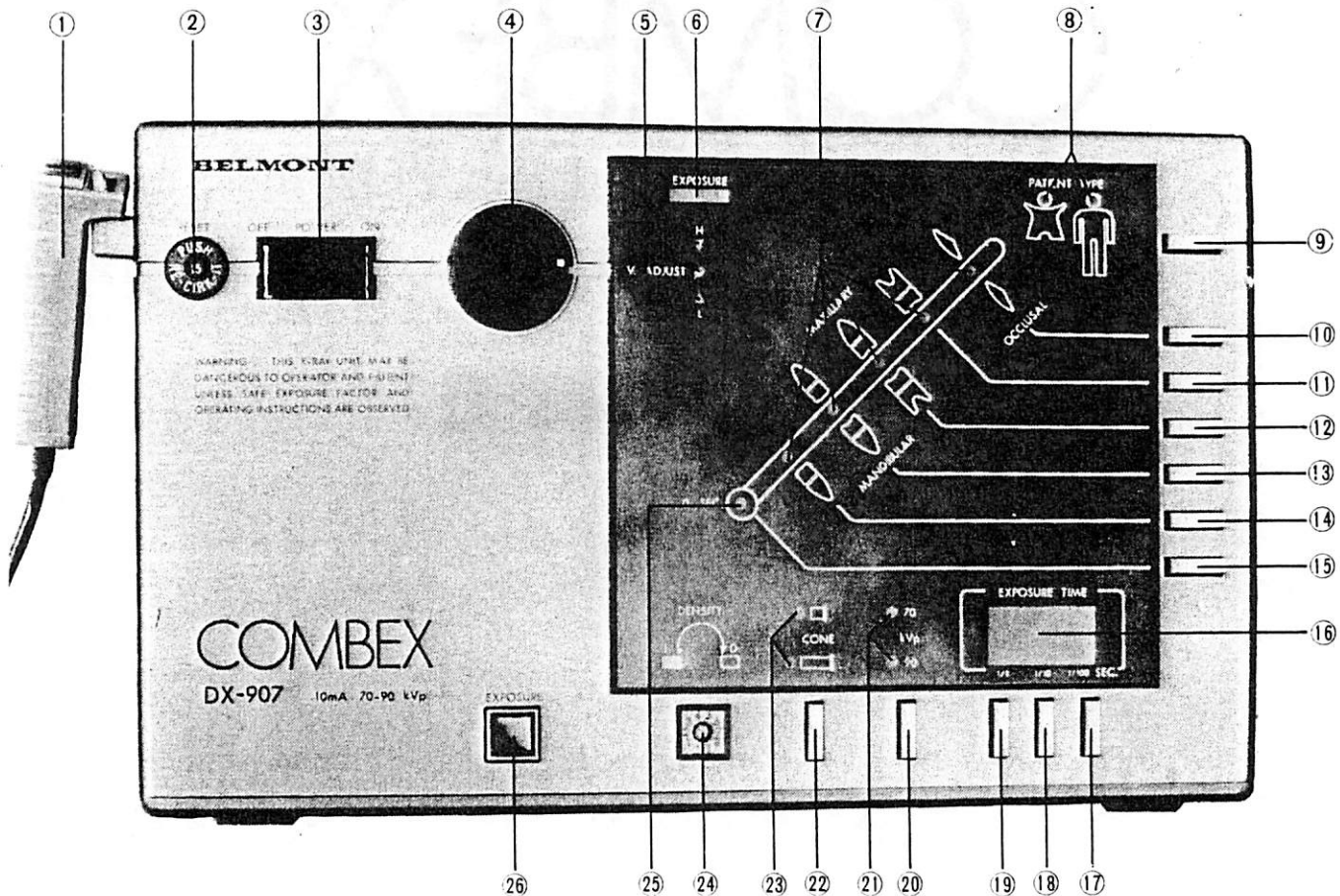


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CONTROL SWITCHES AND INDICATING LAMPS IDENTIFICATION



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| ① HAND EXPOSURE SWITCH | ⑭ TOOTH SELECTION SWITCH (INCISIVI OF MANDIBULA) |
| ② CIRCUIT BREAKER | ⑮ ZERO TIMER SELECTION SWITCH |
| ③ MAIN POWER SWITCH | ⑯ EXPOSURE TIME DISPLAY |
| ④ OPERATING VOLTAGE ADJUSTMENT KNOB | ⑰ 1/100 MANUAL TIMER SETTING SWITCH |
| ⑤ OPERATING VOLTAGE INDICATING LAMPS | ⑱ 1/10 MANUAL TIMER SETTING SWITCH |
| ⑥ EXPOSURE WARNING LAMP | ⑲ 1/1 MANUAL TIMER SETTING SWITCH |
| ⑦ TOOTH SELECTION INDICATING LAMPS | ⑳ KVP SELECTION SWITCH |
| ⑧ PATIENT TYPE INDICATING LAMPS | ㉑ KVP INDICATING LAMPS |
| ⑨ PATIENT TYPE SELECTION SWITCH | ㉒ CONE TYPE SELECTION SWITCH |
| ⑩ TOOTH SELECTION SWITCH (OCCLUSAL) | ㉓ CONE TYPE INDICATING LAMPS |
| ⑪ TOOTH SELECTION SWITCH (MOLARES OF MAXILLA) | ㉔ FILM DENSITY SELECTION DIAL |
| ⑫ TOOTH SELECTION SWITCH (CANINI AND PREMOLARES OF MAXILLA, MOLARES OF MANDIBULA) | ㉕ ZERO TIMER INDICATING LAMP |
| ⑬ TOOTH SELECTION SWITCH (INCISIVI OF MAXILLA, CANINI AND PREMOLARES OF MANDIBULA) | ㉖ EXPOSURE SWITCH |

OPERATION AND FUNCTION : CONTROL SWITCHES A

NOTE : The number refers to the numbers used for part identification on page 2.

EXPOSURE SWITCHES, HAND ① AND FRONT PANEL MOUNTED ②⑥.

Deadman-type exposure switches. When making an exposure, depress either switch until both the Exposure Warning Lamp ⑥ and the audible warning terminate. Failure to keep the switch depressed will result in premature termination of the exposure.

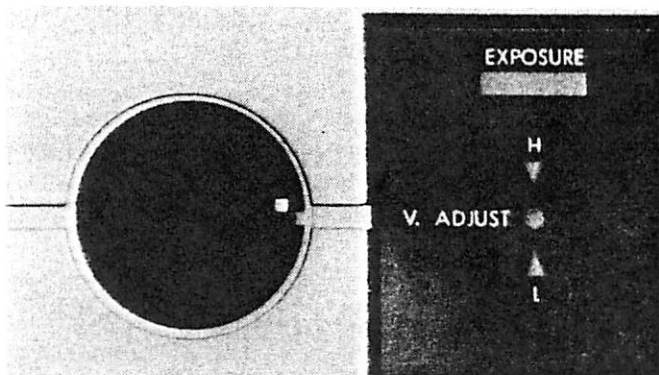
CIRCUIT BREAKER ②.

An over-current protection device rated for 15 amperes. The Circuit Breaker has been tripped when the center post pops-out. If this should occur, turn the Main Power Switch off. Re-set the circuit breaker by pushing the center post back into position.

OPERATING VOLTAGE ADJUSTMENT KNOB ④ AND OPERATING VOLTAGE INDICATING LAMPS ⑤.

The Operating Voltage Adjustment Knob and the Operating Voltage Indicating Lamps function to ensure that the voltage supplied to the x-ray unit is within the manufacture's specifications.

After turning the unit ON, inspect the three operating voltage indicating lamps. If the red lamp marked H is illuminated the voltage is too high to operate the unit. Correct this condition by turning the Operating Voltage Adjustment Knob clockwise until the green indicating lamp (used to indicate correct operating voltage) is illuminated. If the red lamp marked L is illuminated the voltage is too low. Correct by turning the adjustment knob counterclockwise until the green lamp is illuminated.



Note : The x-ray unit will not make an exposure unless the green operating voltage indicating lamp is illuminated.

TOOTH SELECTION INDICATING LAMPS ⑦.

Illumination indicates the x-ray unit is in the automatic exposure time selection mode, and that the exposure time calculated by the microcomputer is for that specific tooth selection.

Note : If exposure time has been set manually or if the zero timer selection switch ⑮ has been depressed, none of these lamps will be illuminated.

INDICATION LAMPS

KVP INDICATING LAMPS ⑳

Illumination indicates for what factor of kVp, 70kVp or 90kVp, the microcomputer will calculate the automatic exposure time.

KVP SELECTION SWITCH ㉔

Momentarily depressing switch will change the kVp factor used by the microcomputer to calculate the automatic exposure time from either 70kVp or 90kVp to the alternate selection (as indicated by the KVP Indicating Lamps).

CONE TYPE INDICATING LAMPS ㉓

Illumination indicates for what type cone, regular or long, the microcomputer will calculate the automatic exposure time.

CONE TYPE SELECTION SWITCH ㉒

Momentarily depressing switch will change the cone type factor used by the microcomputer to Calculate the automatic exposure time from either regular or long cone to alternate selection (as indicated by the Cone Type Indicating Lamps).

NOTE : CHANGING THE CONE SELECTION REQUIRES CHANGING THE CONE

FILM DENSITY SELECTION DIAL ㉑

Used to adjust film density according to the film being used. If KODAK Ultraspeed film or its equivalent is being used, the dial should be set at the #4 setting. If KODAK Ektaspeed film or its equivalent is being used, the dial should be set on the #2 setting.

If after initial use, the doctor prefers a lighter film, adjust the dial to the next LOWER setting. If a darker film is preferred, adjust the dial to the next HIGHER setting.

ZERO TIMER INDICATING LAMP ㉕

Illumination indicates that the exposure timer has been set at the zero setting.

MANUAL TIMER SETTING

Depressing any Manual Timer Setting Switch ㉗, ㉘, ㉙ will turn off all Tooth Selection Indicating Lamps, which will aid the operator in determining which mode the unit is in.

Depressing the Cone Type Selection Switch ㉒, KVP Selection Switch ㉔ or Patient Type Selection Switch ㉚ after manually setting the exposure time will automatically change the Exposure Time Display to 0.00 second.

OPERATING PROCEDURES

1. Turn Main Power Switch ③ ON.
2. Inspect the Operating Voltage Indicating Lamps ⑤. If the red lamp marked H is illuminated, rotate the Operating Voltage Adjustment Knob ④ clockwise until the green lamp is illuminated. If the red lamp marked L is illuminated, rotate the adjustment knob ④ counter-clockwise until the green lamp is illuminated.

NOTE : THE X-RAY UNIT WILL NOT MAKE AN EXPOSURE UNLESS THE GREEN LAMP IS ILLUMINATED.

3. Select the appropriate setting for Tooth Type, and confirm if the pre-selected conditions (PATIENT TYPE, CONE TYPE, KVP) are suitable for radiographing.

To change the pre-selected condition(s), depress the corresponding switch(es). A built-in microcomputer calculates the exposure time and display it.

NOTE : To manually set the exposure time;

- a. Select the appropriate setting for KVP.
- b. Depress Manual Timer Setting Switch(es) ⑰ ⑱ ⑲ until the desired exposure time is displayed on the Exposure Time Display ⑩

DO NOT select KVP, CONE TYPE or PATIENT TYPE *after* the exposure time has been set manually. Depressing any control switch for these factors will automatically change the exposure time to 0.00 setting. (Zero Timer Indicating Lamp illuminates)

To return the unit to the automatic exposure time selection mode, depress any Tooth Selection Switch ⑩ ⑪ ⑫ ⑬ ⑭ or Zero Timer Selection Switch ⑮.

4. Depress either Exposure Switch ① or ②. When an exposure switch is depressed, the Exposure Warning Lamp ⑥ and a warning lamp located on the x-ray head will illuminate, and the audible warning will sound. Do not release the exposure switch until the audible warning and the warning lamps terminate. Failure to keep the switch depressed will result in the exposure being terminated prematurely.
5. After use turn the Main Power Switch ③ OFF in order to prevent accidental exposures.

MAINTENANCE

The COMBEX X-RAY unit requires the following periodic maintenance checks be performed to ensure the unit is functioning within the manufacturer's specifications.

It is the responsibility of the owner of the unit to see that these maintenance checks are done once every 6 months and that they are performed by a trained, certified service technician.

The specific instructions to perform these checks are located within the COMBEX Installation Manual.

- A. Operating Voltage Test
- B. Tube Current (mA) calibration
- C. Line Voltage Regulation Test
- D. Timer Accuracy Test
- E. Inspection of Arm and Head Movement

MAINTENANCE RECORD