



US00D526584S

(12) **United States Design Patent**
Wakamatsu et al.

(10) **Patent No.:** **US D526,584 S**

(45) **Date of Patent:** **** Aug. 15, 2006**

(54) **FREQUENCY MEASURING DEVICE FOR A CRYSTAL RESONATOR**

6,525,549 B1 * 2/2003 Poellmann 324/717
6,798,222 B1 * 9/2004 Tanaka et al. 324/715
6,987,347 B1 * 1/2006 Yoshio et al. 310/320

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* cited by examiner

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(57) **CLAIM**

(**) Term: **14 Years**

The ornamental design for a frequency measuring device for a crystal resonator, as shown and described.

(21) Appl. No.: **29/230,488**

DESCRIPTION

(22) Filed: **May 23, 2005**

(30) **Foreign Application Priority Data**

Nov. 24, 2004 (JP) 2004-035789

(51) **LOC (8) Cl.** **10-04**

(52) **U.S. Cl.** **D10/46**

(58) **Field of Classification Search** D10/46;
73/24.06, 580, 778; 310/8.2, 8.9, 320, 344,
310/353, 361, 370; 324/715–719; 333/72
See application file for complete search history.

FIG. 1 is a perspective view of a frequency measuring device for a crystal resonator of a new design;
FIG. 2 is a perspective view thereof wherein a cover is open;
FIG. 3 is a rear elevational view thereof;
FIG. 4 is a top plan view thereof;
FIG. 5 is a front elevational view thereof;
FIG. 6 is a right side elevational view thereof;
FIG. 7 is a left side elevational view thereof;
FIG. 8 is a bottom plan view thereof;
FIG. 10 is a rear elevational view thereof where the cover is open;
FIG. 11 is a front elevational view thereof where the cover is open;
FIG. 12 is a right side view thereof where the cover is open;
FIG. 13 is a left side elevational view thereof where the cover is open;
FIG. 14 is a bottom plan view thereof when the cover is open.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,872,411 A * 3/1975 Watanabe et al. 310/312
3,931,388 A * 1/1976 Hafner et al. 310/344
4,124,809 A * 11/1978 Engdahl et al. 310/361
5,436,523 A * 7/1995 Staudte 310/348
6,295,861 B1 * 10/2001 Tom et al. 73/24.06

1 Claim, 7 Drawing Sheets

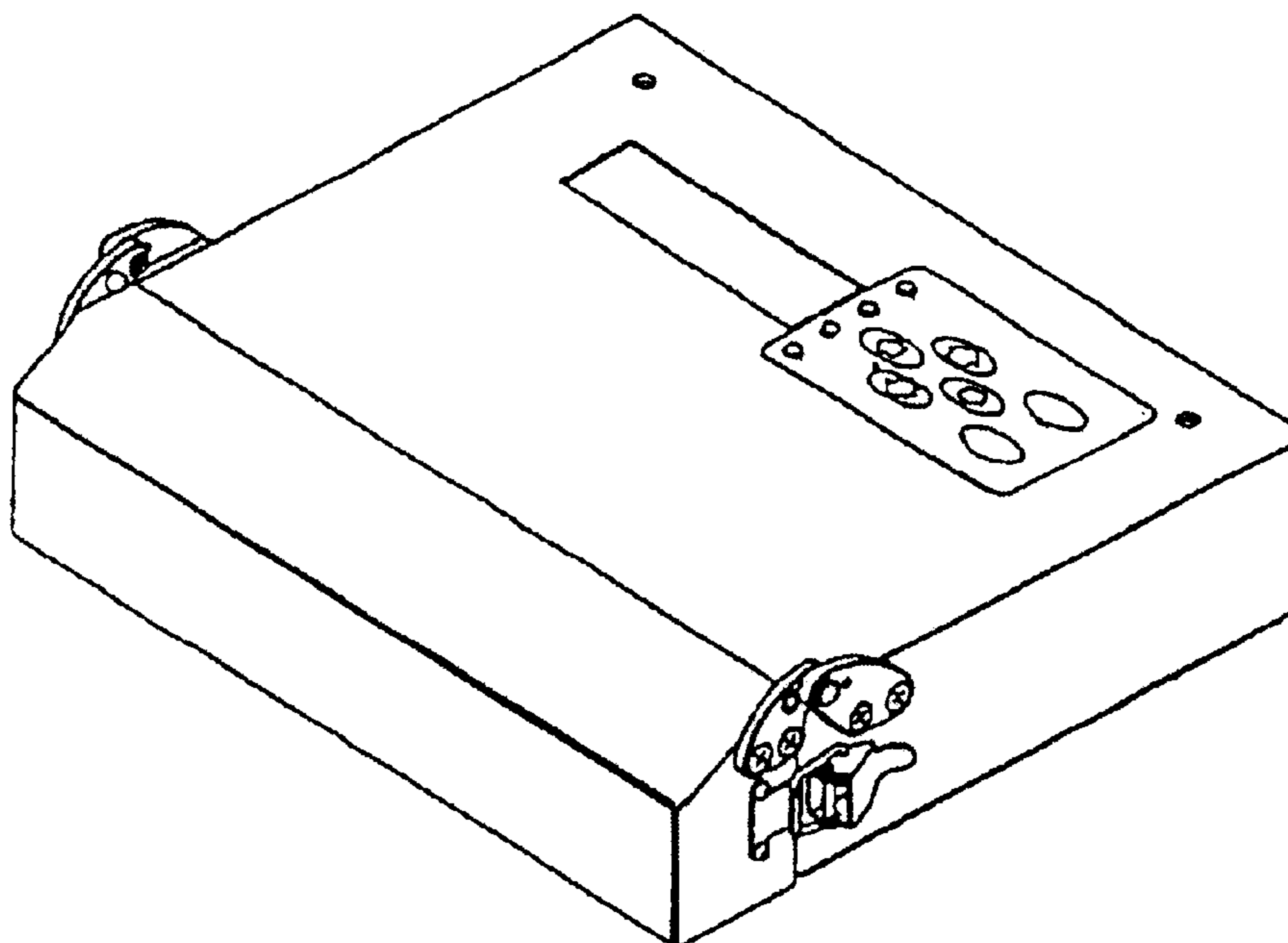


Fig. 1

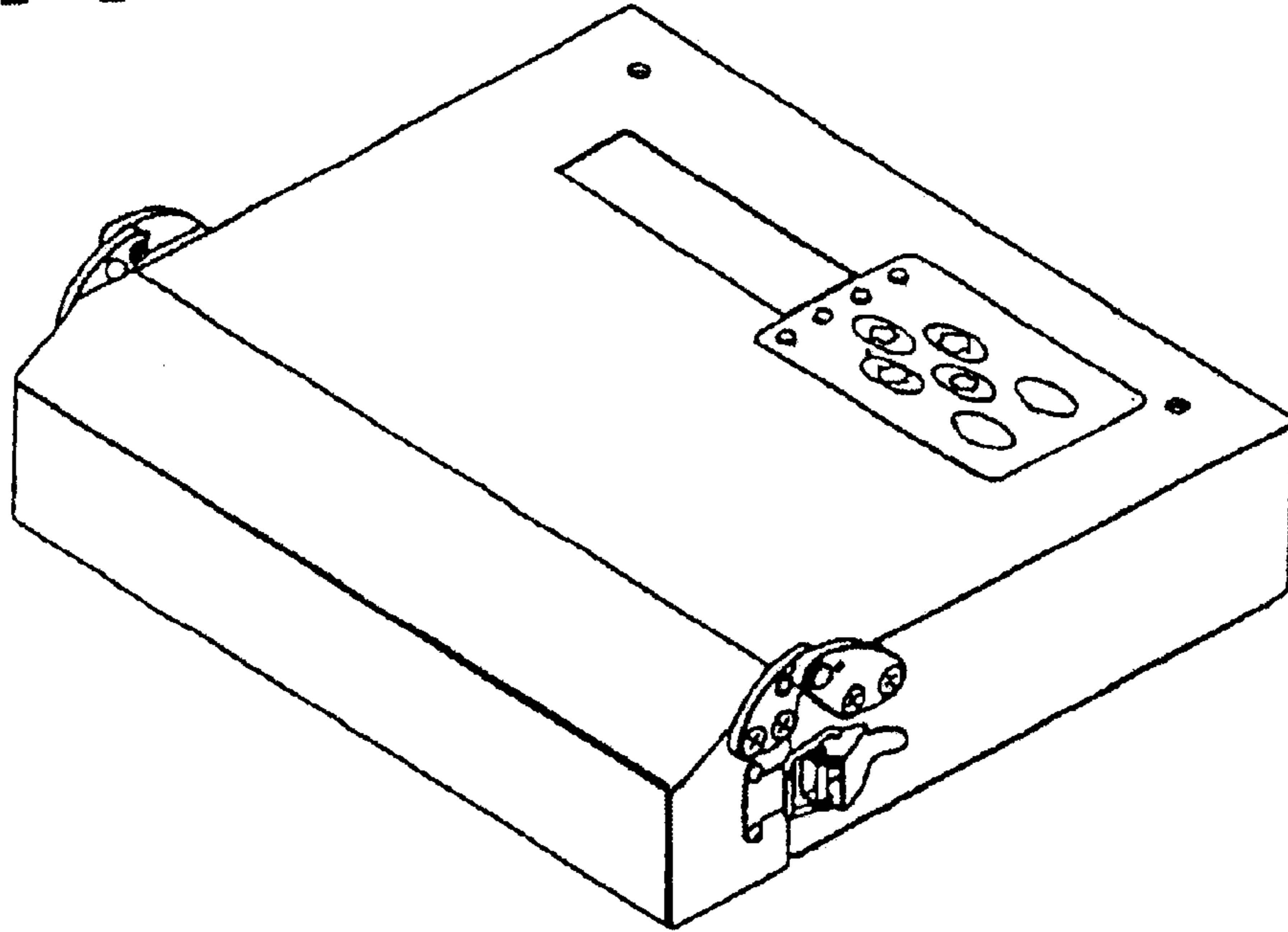


Fig. 2

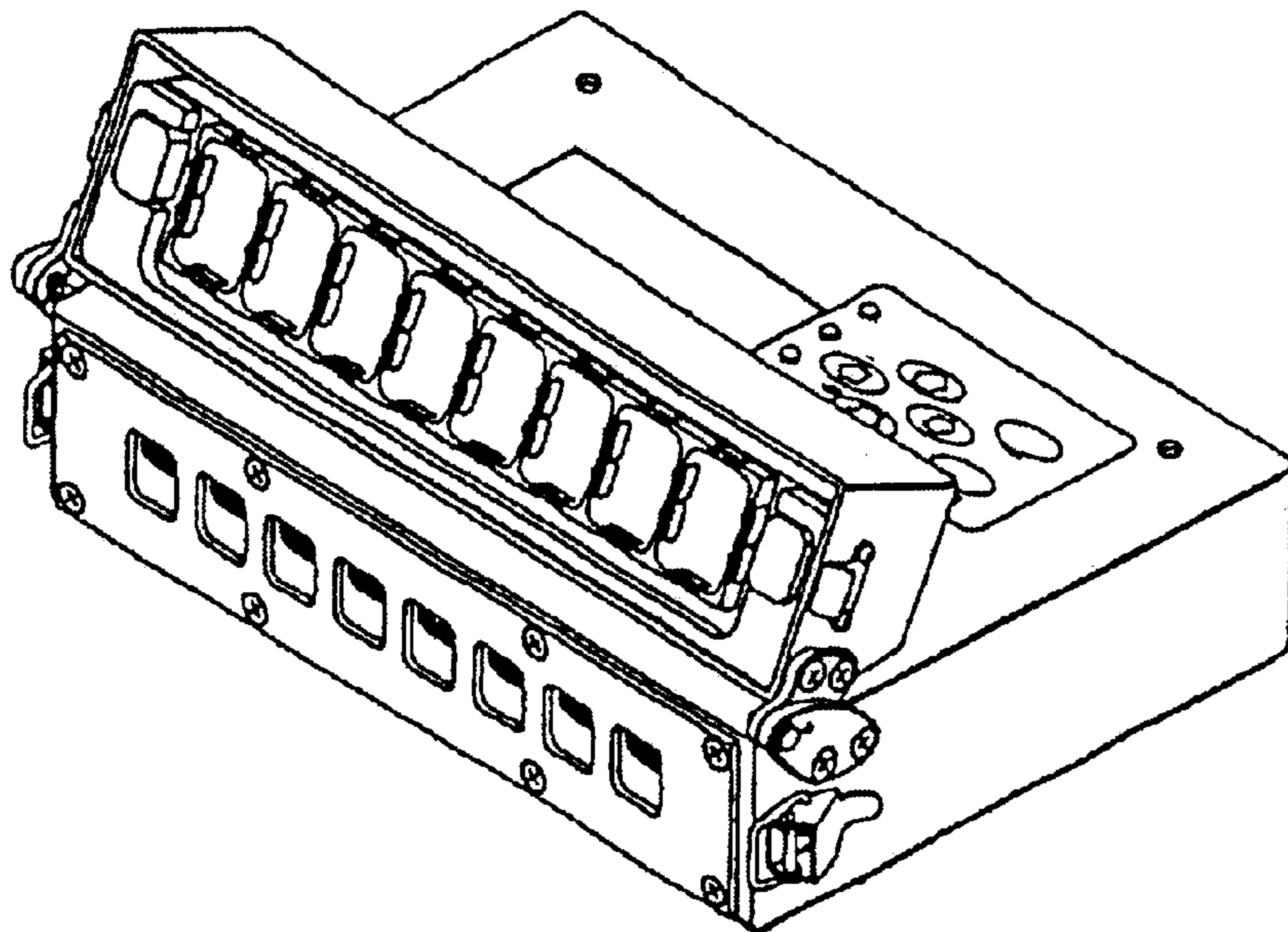


Fig. 3

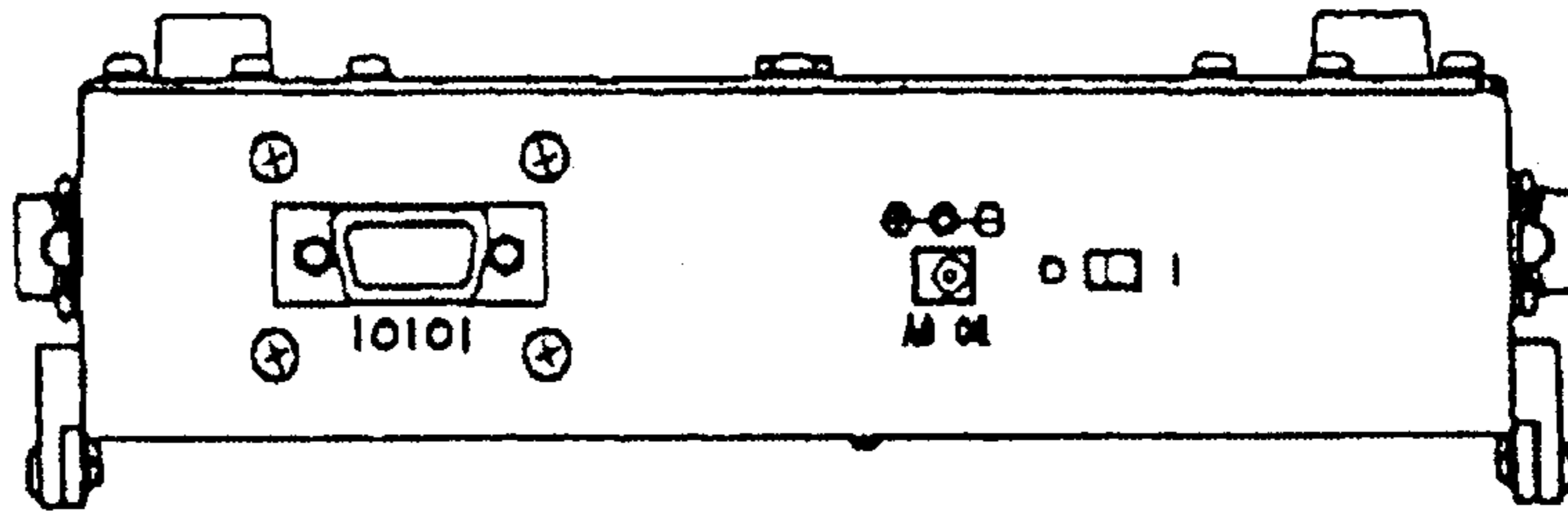


Fig. 4

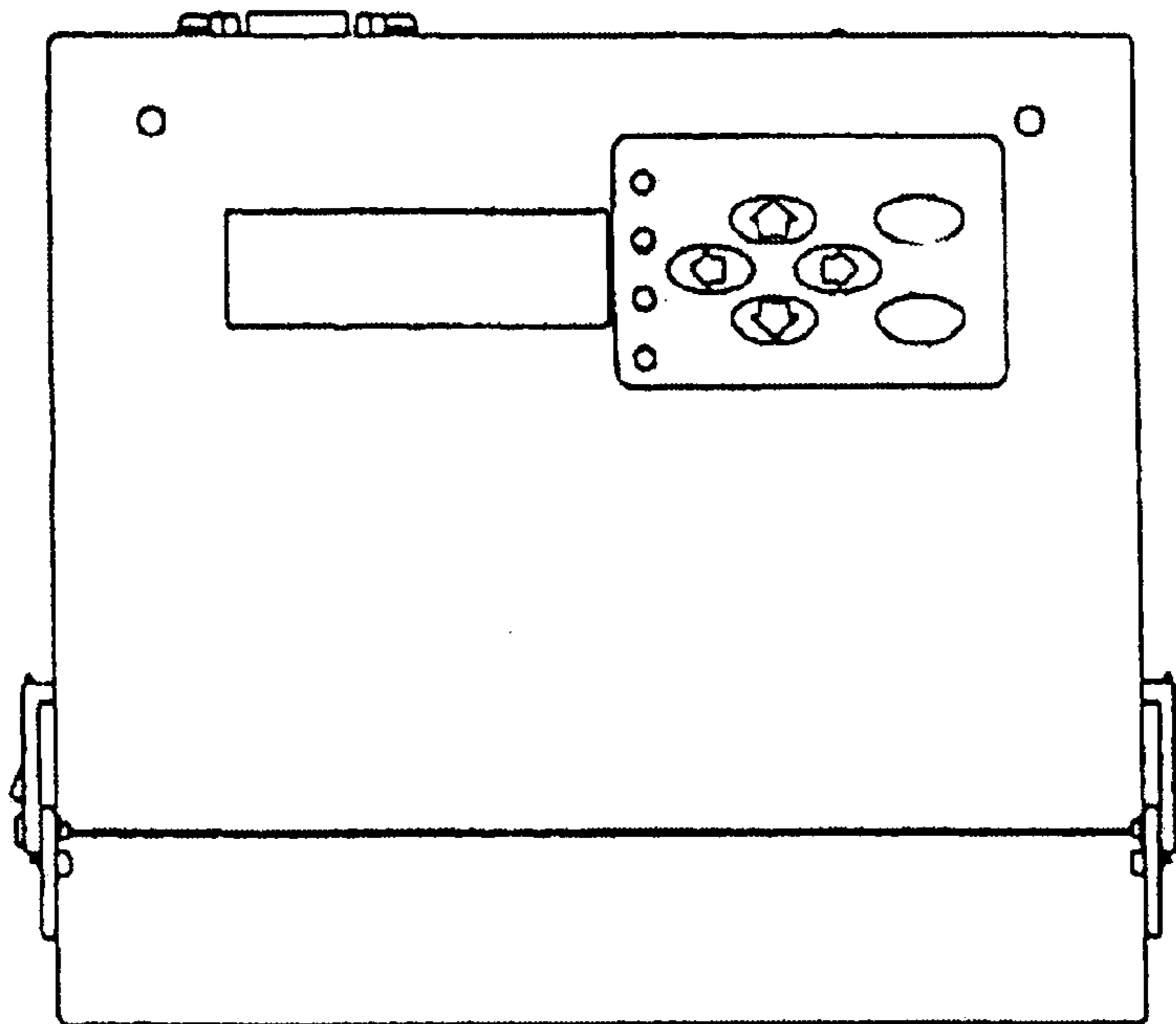


Fig. 5

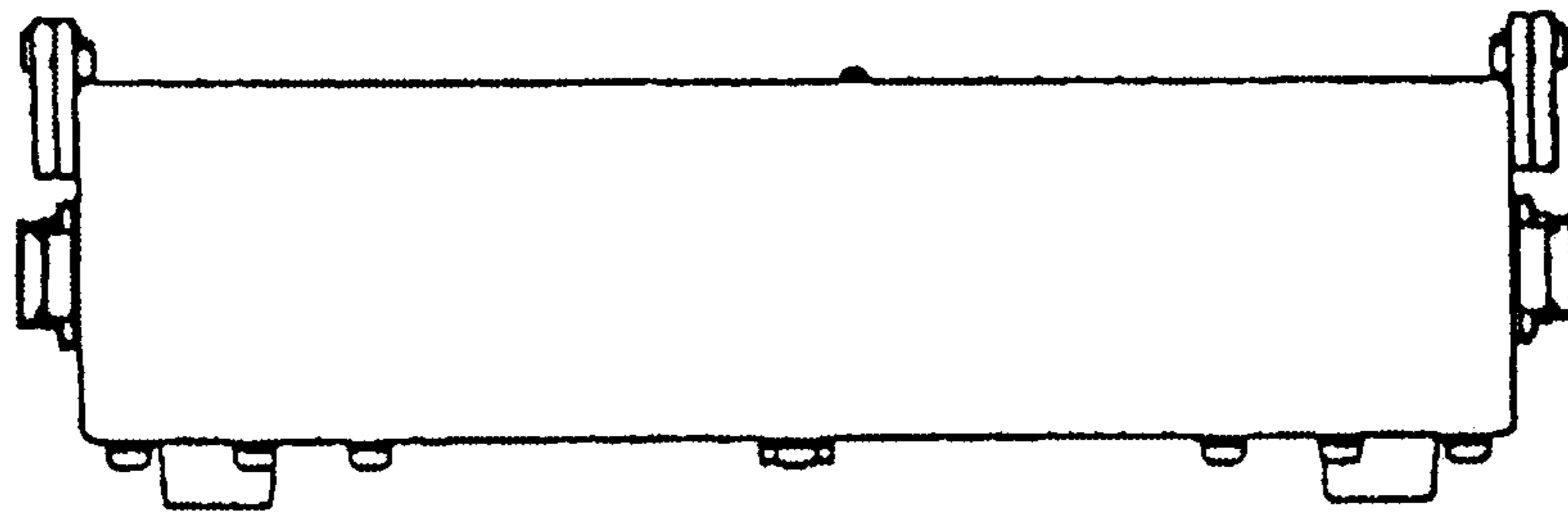


Fig. 6

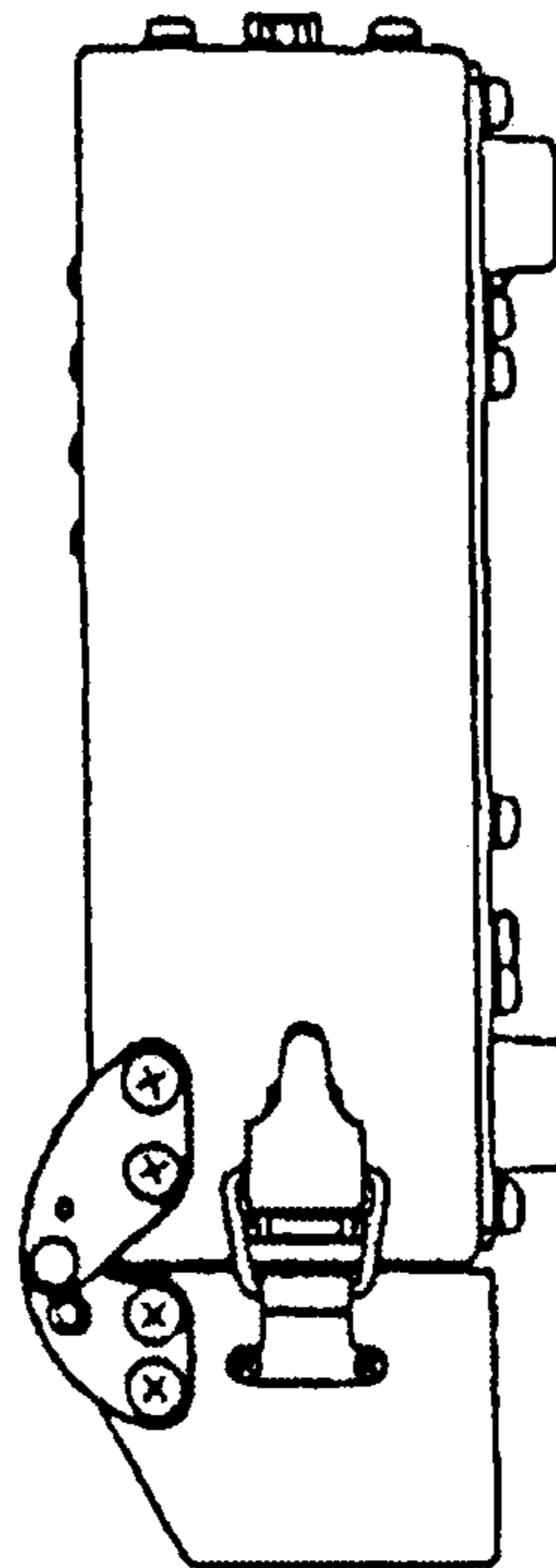


Fig. 7

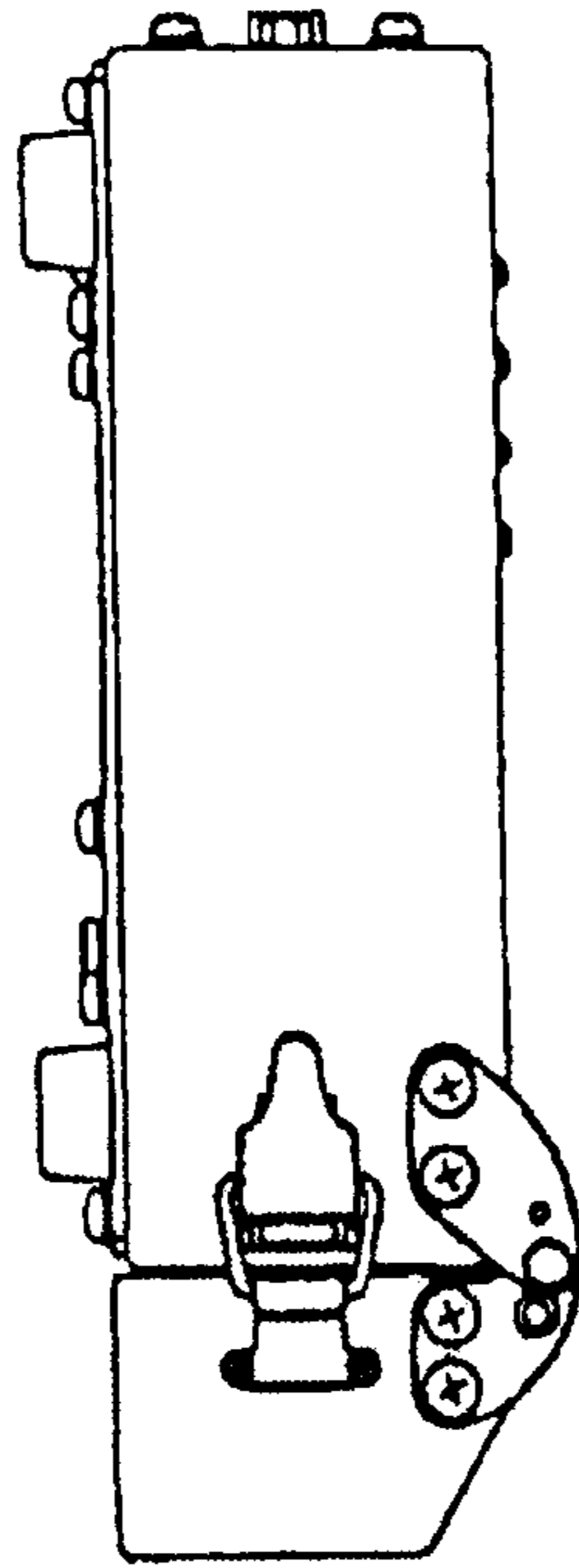


Fig. 8

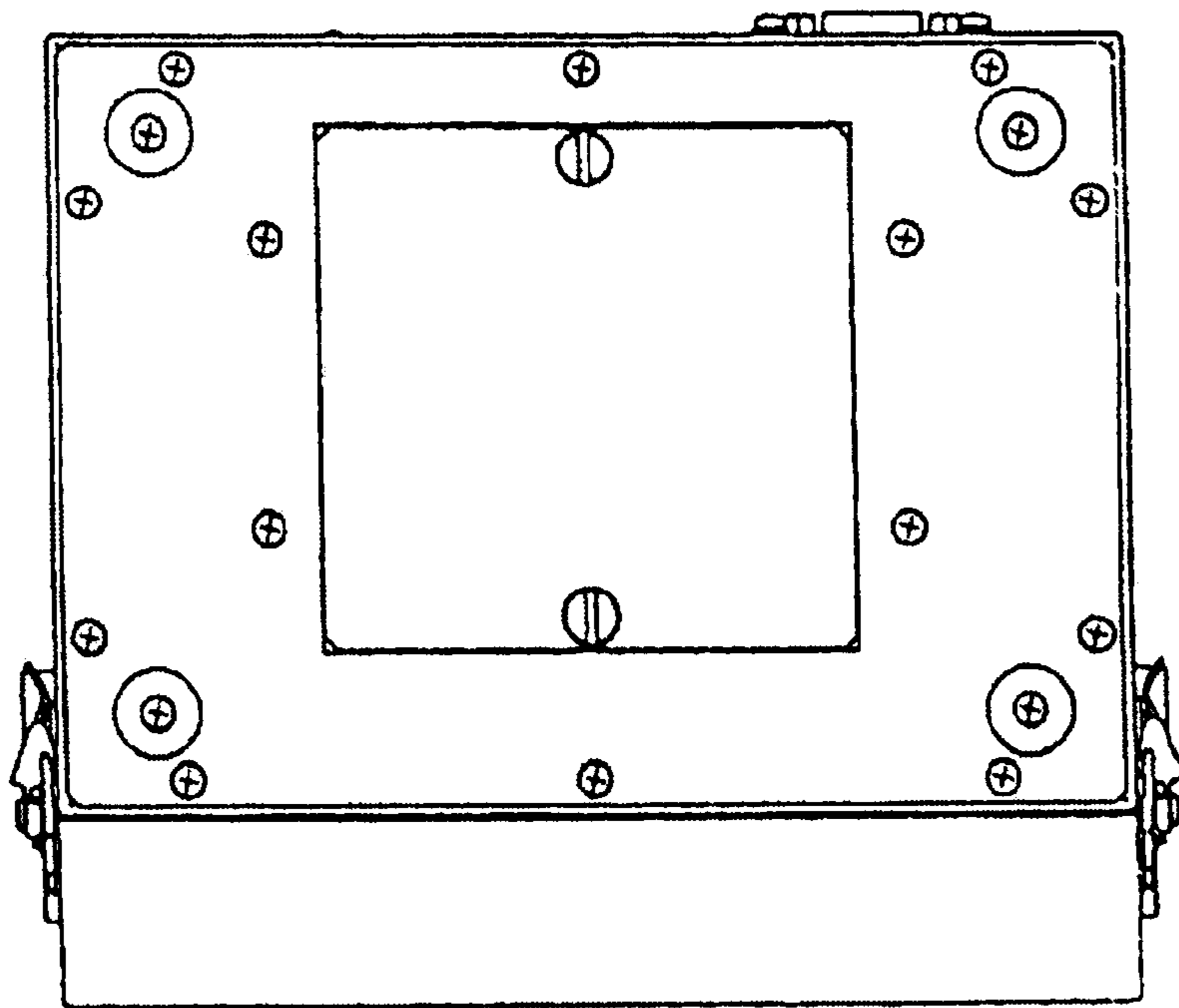


Fig. 9

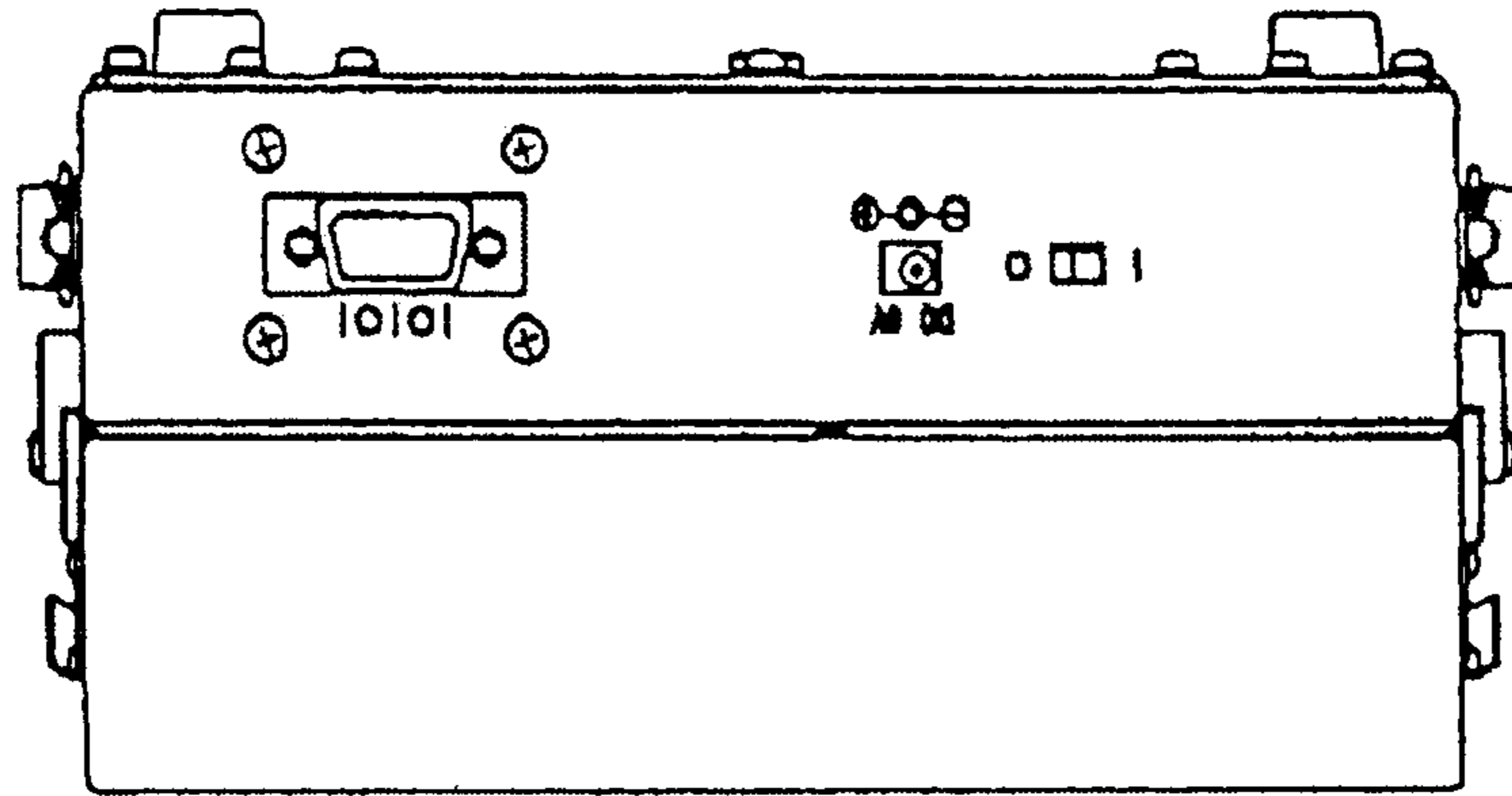


Fig. 10

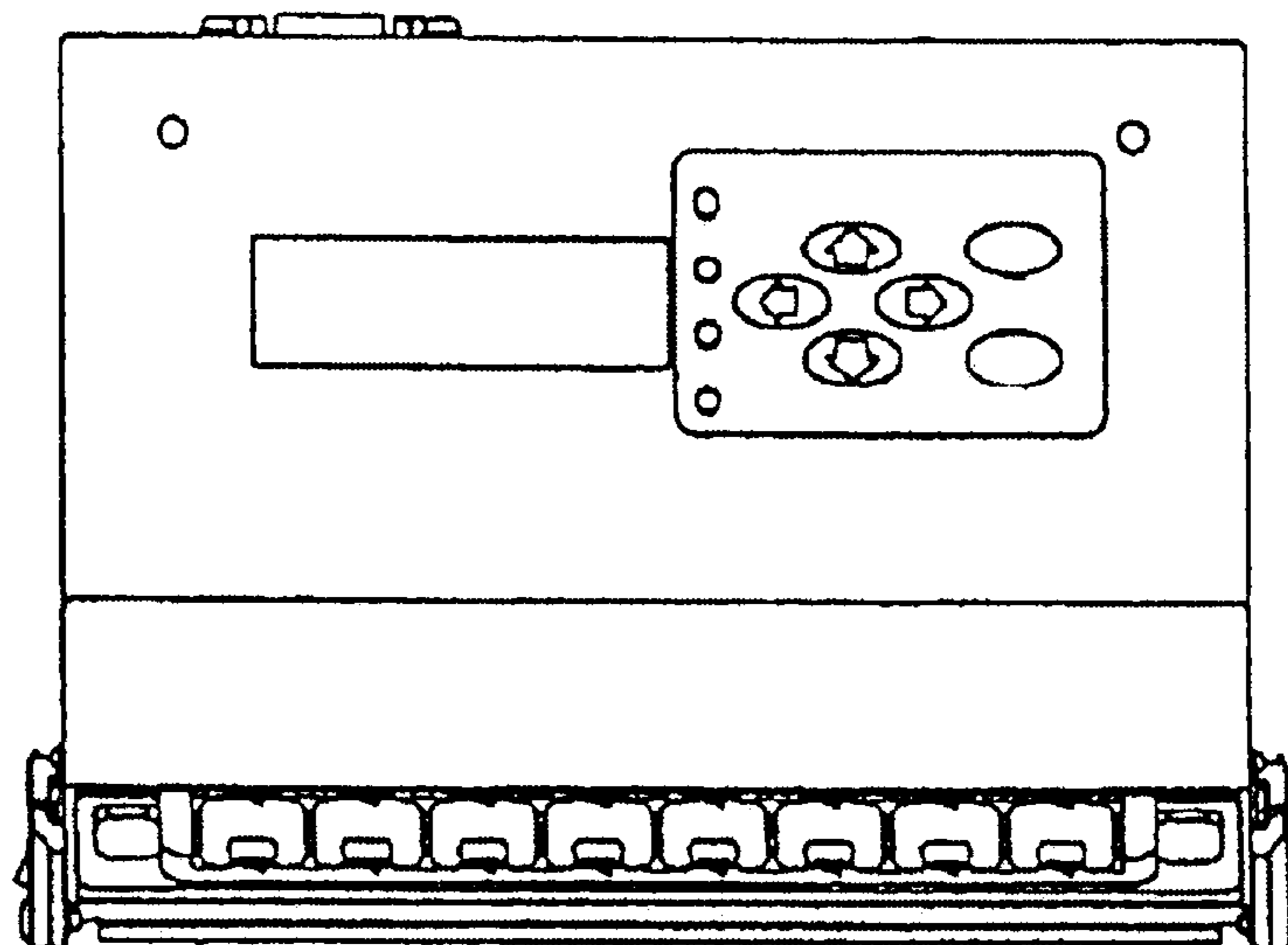


Fig. 11

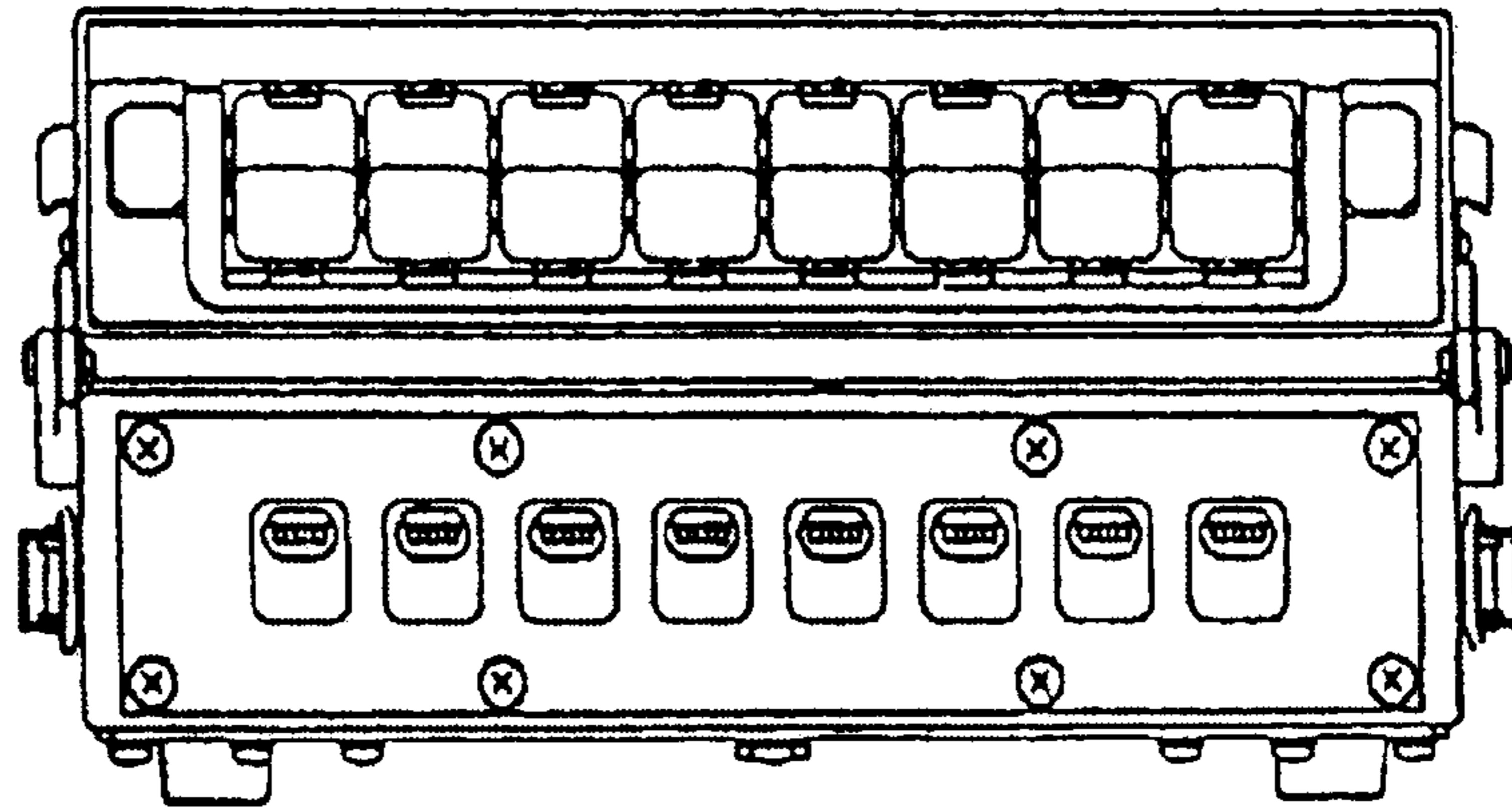


Fig. 12

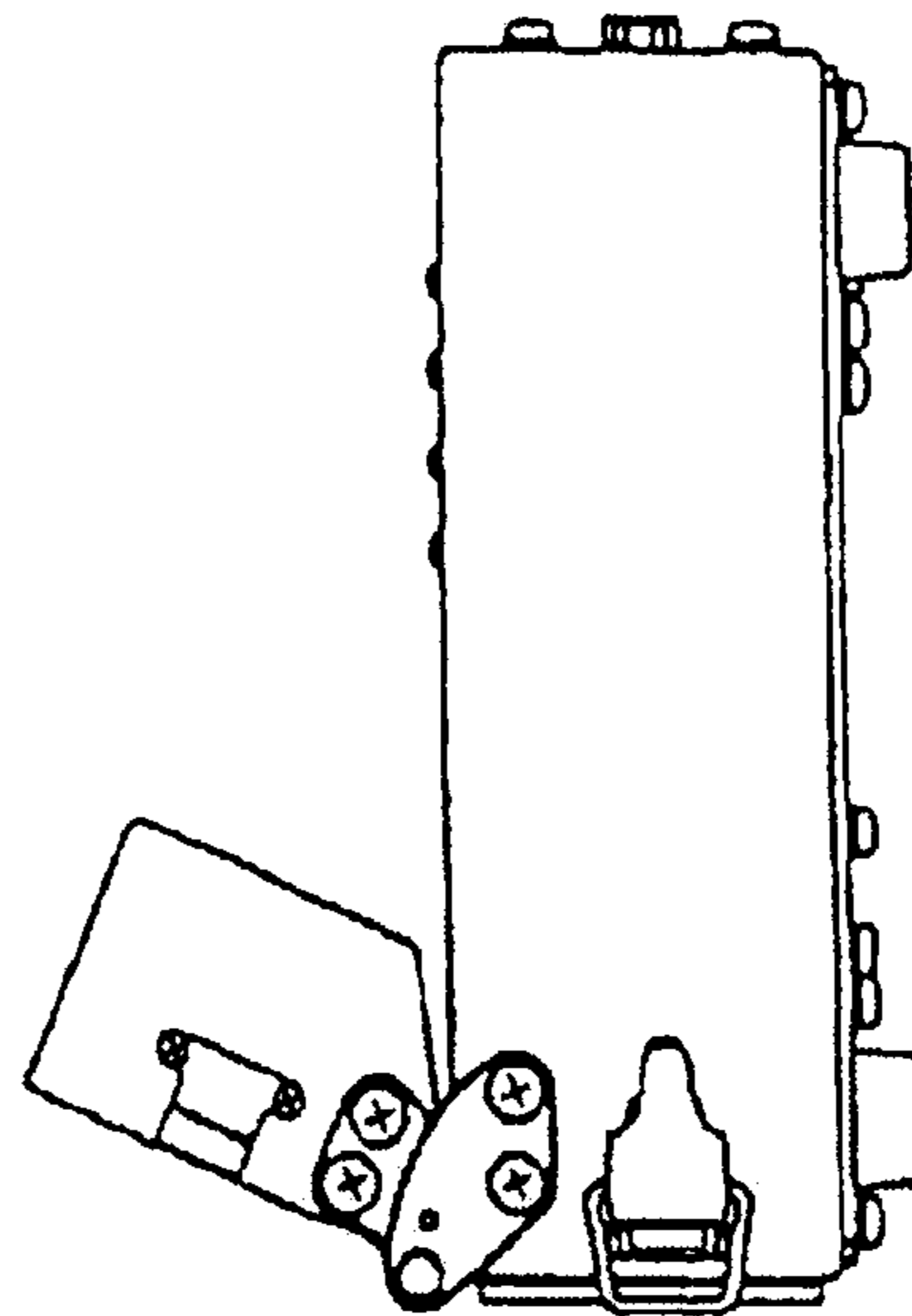


Fig. 13

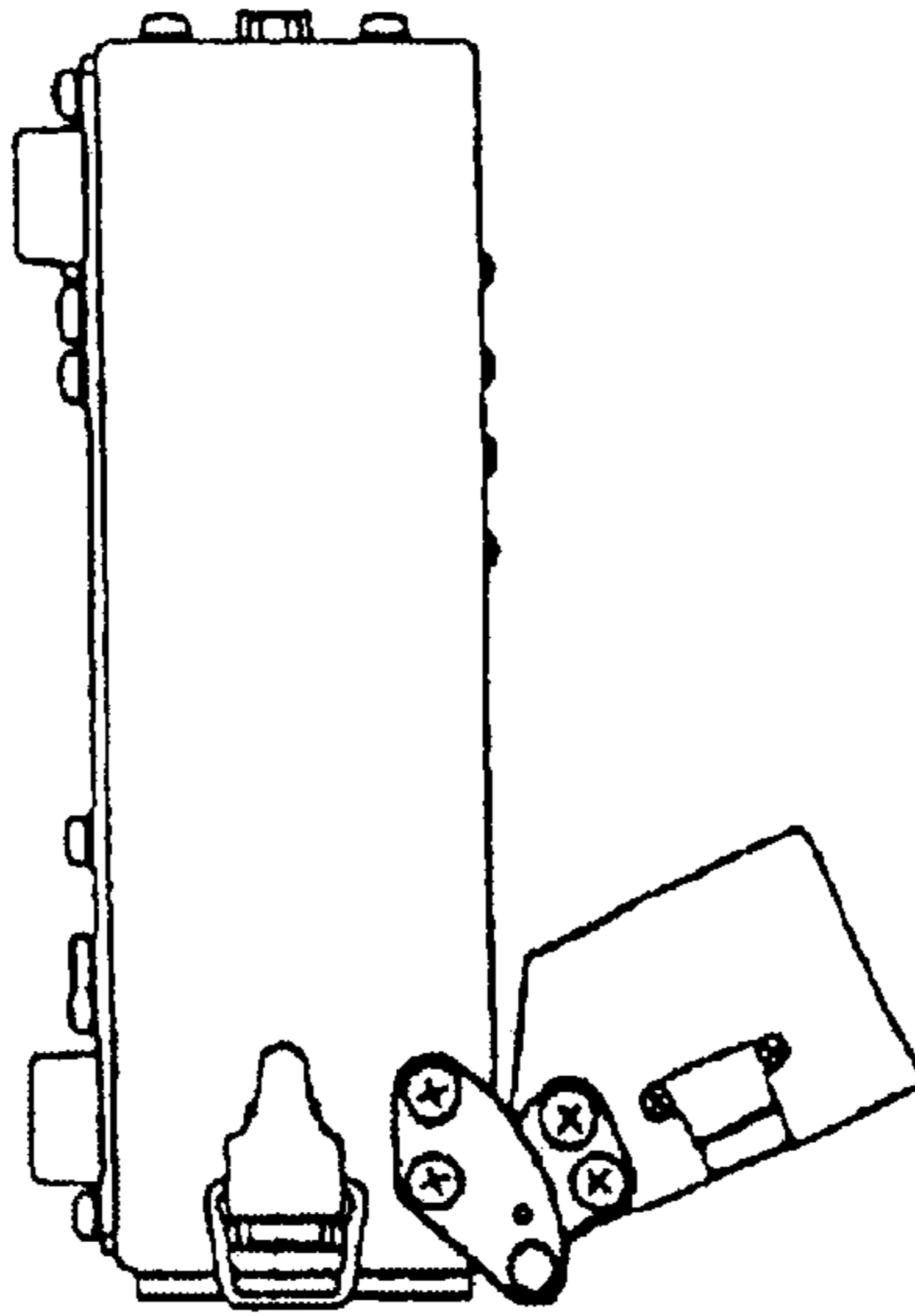


Fig. 14

