FJ SERIES

INDUSTRIAL CRANE SCALES

MAINTENANCE MANUAL

Maintenance-FJ-v.1.c 20.05.99 PH

A&D Company, Limited

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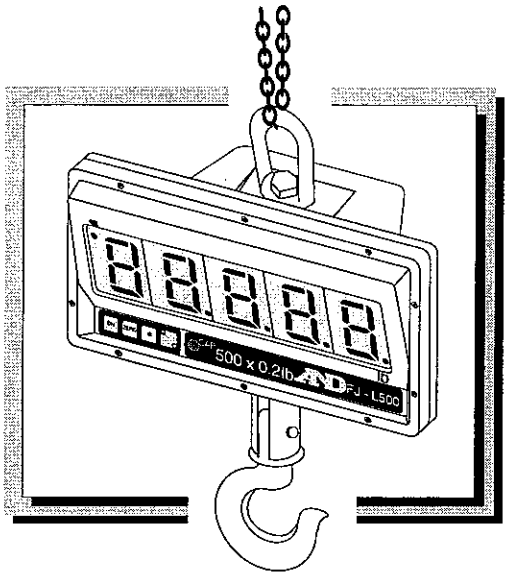
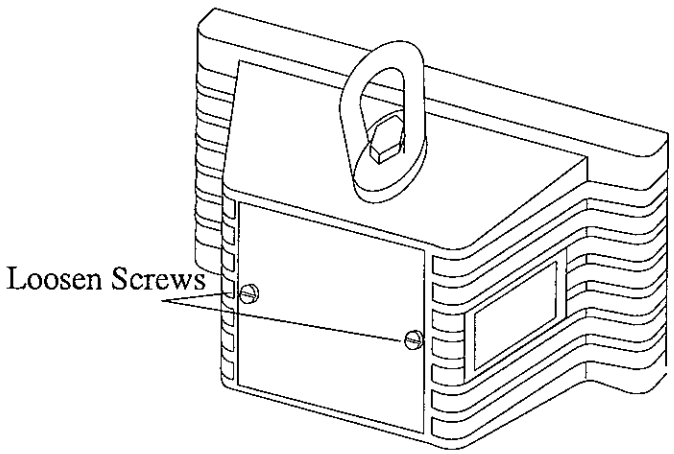


FJ Series • Section A

Disassembly

Removing the Electronics Assembly

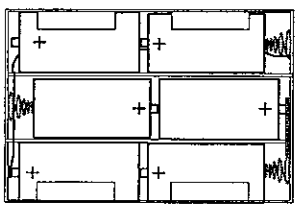
1



▶ Loosen the 2 screws securing the battery cover plate to the case and remove the cover plate.

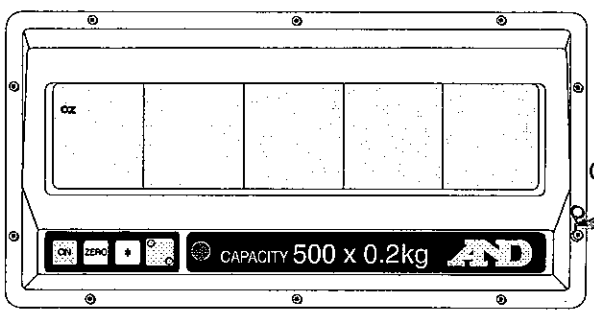
⚠ A flat blade screwdriver may be required for this step.

2



▶ Remove the 6 x 'D' cells from the battery holder and store for further use.

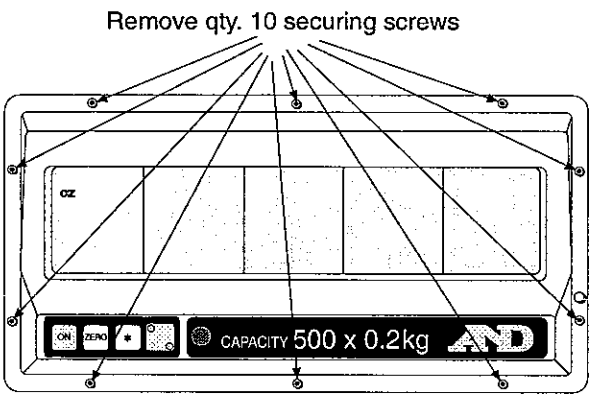
3



▶ At the front of the scale, remove any wire sealing which may have been applied to tamperproof the 2 halves of the casting.

⚠ A pair of wire cutters will be required for this step.

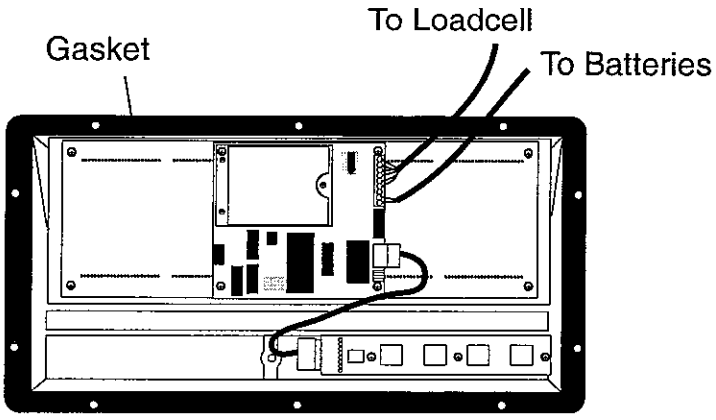
4



▶ Remove the screws securing the front casting to the body of the scale.

⚠ A 3mm Allen key is required for this operation.

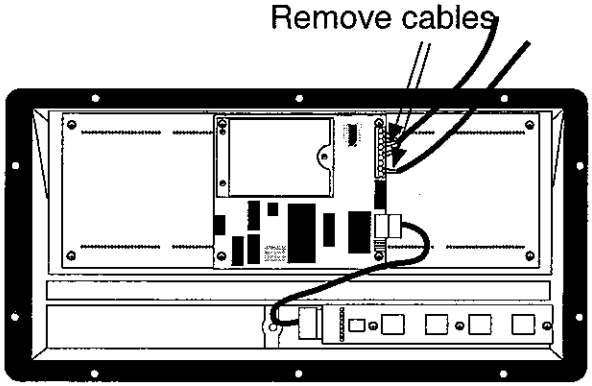
5



▶ Carefully separate the two case halves and place the front section upside down on the bench adjacent to the rear section.

⚠ Two cables join the two halves of the casting.

6

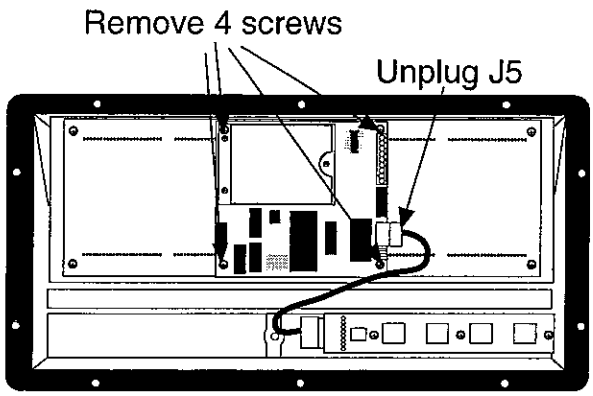


▶ Loosen the terminal strip screws and remove the loadcell and battery cables.

⚠ A small flat blade screwdriver is required for this step.

Removing the Main Board

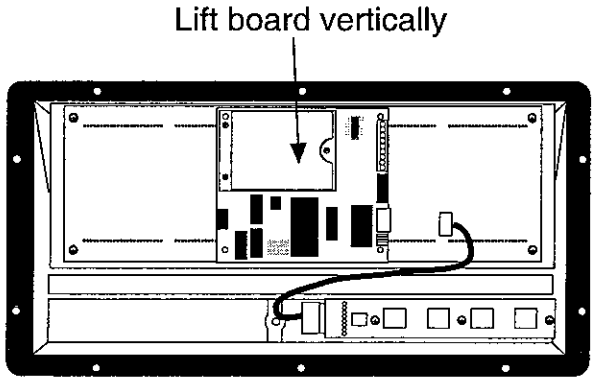
1



▶ Unplug the keyboard connector J5 and remove the 4 screws securing the main board to the display board.

⚠ A cross head screwdriver is required for this step.

2

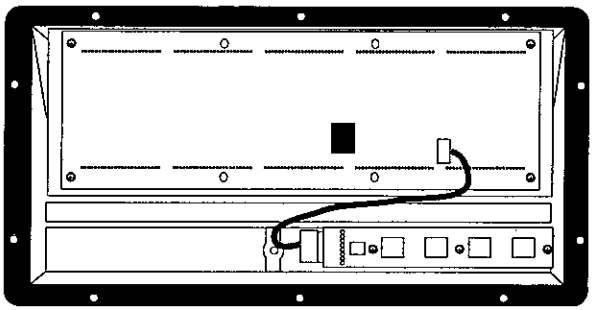


▶ Carefully lift the main board, straight up, away from the display board.

⚠ The 2 boards are connected by a fixed plug/socket which must be separated without bending the pins.

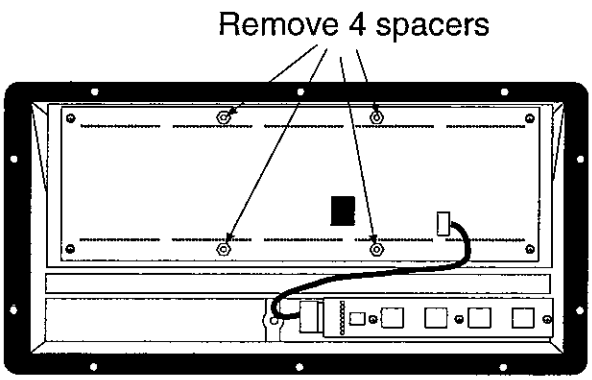
Removing the Display Board

1



- Remove the main board as previously described.

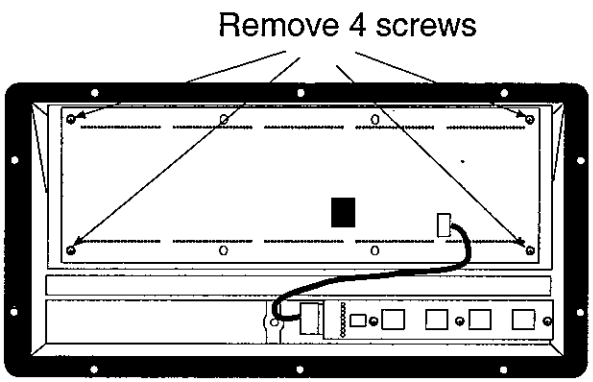
2



- Remove the 4 hexagon spacers securing the centre of the display board to the casting.

⚠ A 5mm spanner will be required for this step.

3

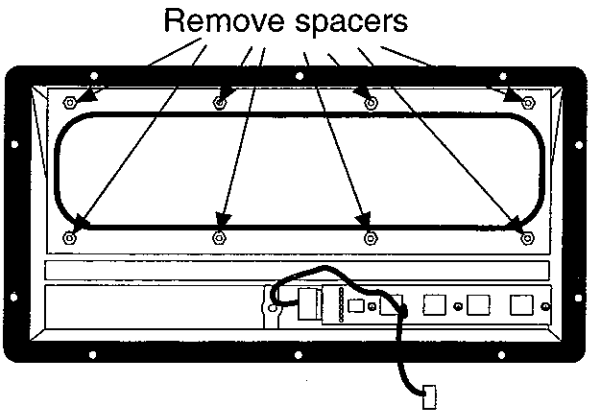


- Remove the 4 screws securing the ends of the display board to the casting.

⚠ A cross head screwdriver will be required for this step.

Removing the Front Protective Screen

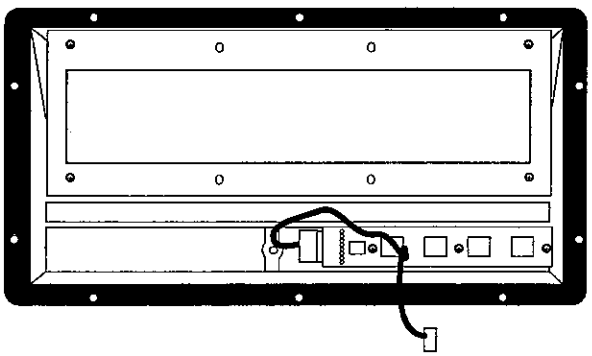
1



▶ Remove the main & display boards as previously described then remove the 8 spacers securing the screen to the front casting.

⚠ A 5mm spanner will be required for this step.

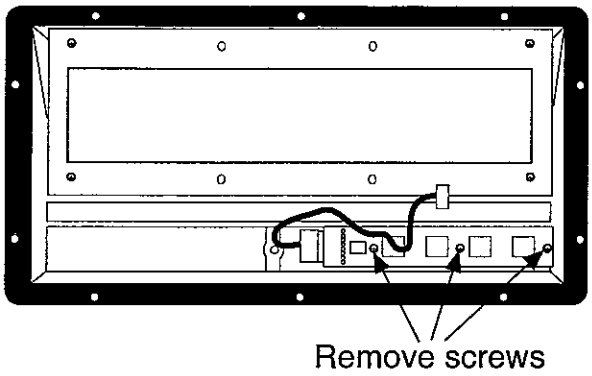
2



▶ Lift out the screen and its waterproofing gasket.

Removing the Keyboard

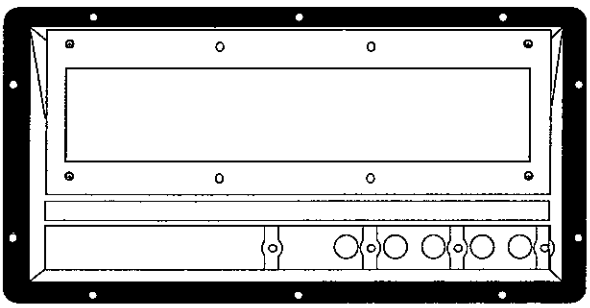
1



▶ Remove the 3 screws securing the board to the casting.

⚠ A cross head screwdriver is required for this step.

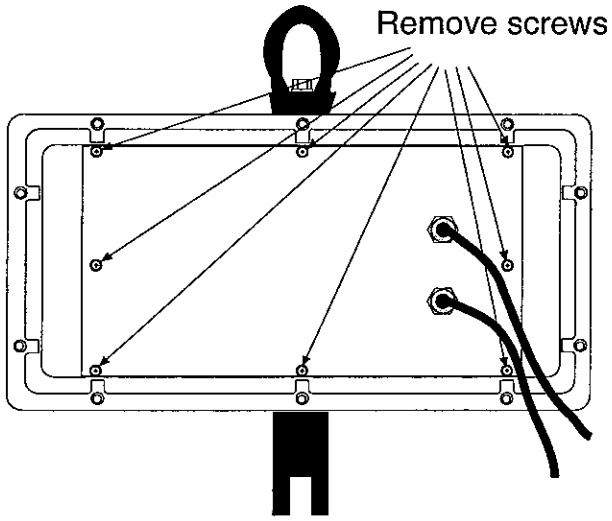
2



▶ Lift the keyboard & cable clear of the casting.

Removing the Loadcell

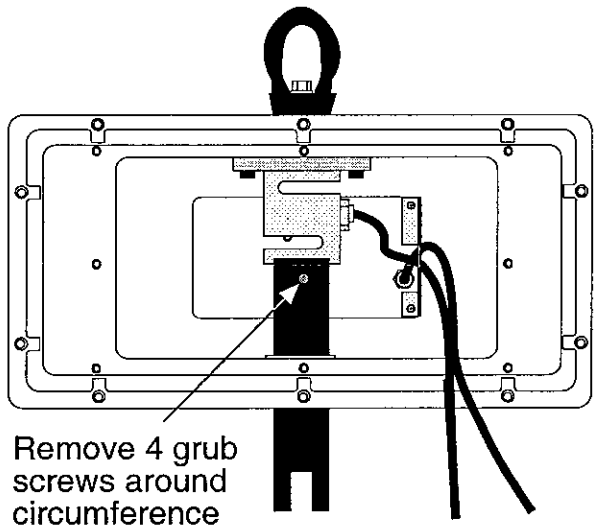
1



▶ Remove the 8 screws securing the inner baffle plate to the rear casting.

⚠ A cross head screwdriver is required for this step.

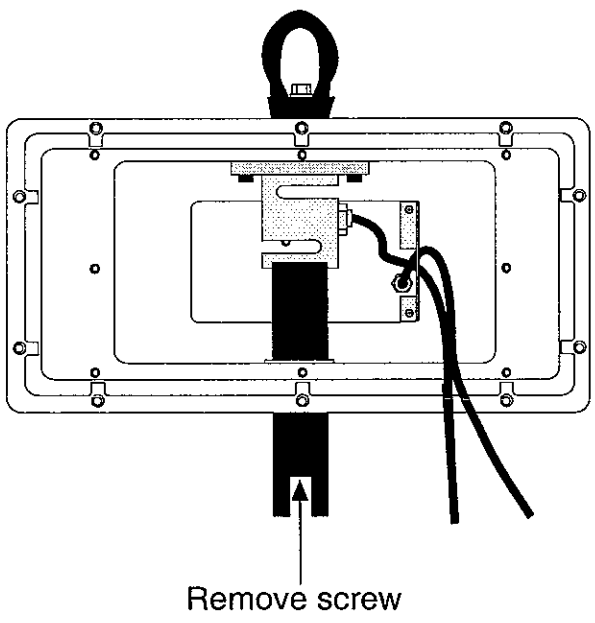
2



▶ Remove the 4 grub screws locking the clevice pin to the bolt .

⚠ An allen key of suitable size is required for this step.

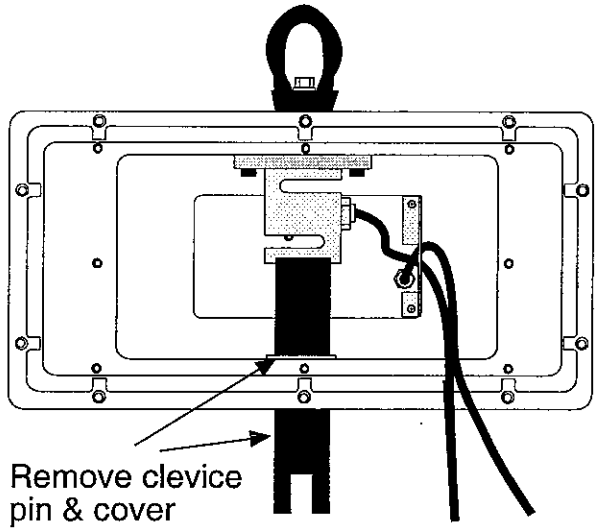
3



▶ Remove the cap head screw securing the clevice to the loadcell.

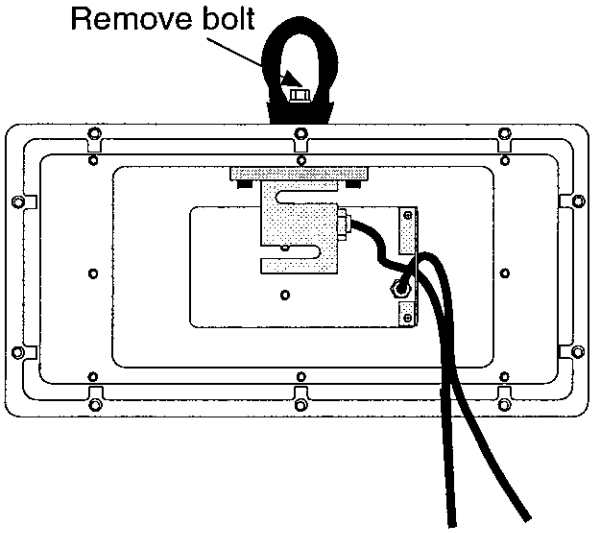
⚠ An allen key of suitable size is required for this step.

4



▶ Withdraw the clevice pin and remove the plastic cover part.

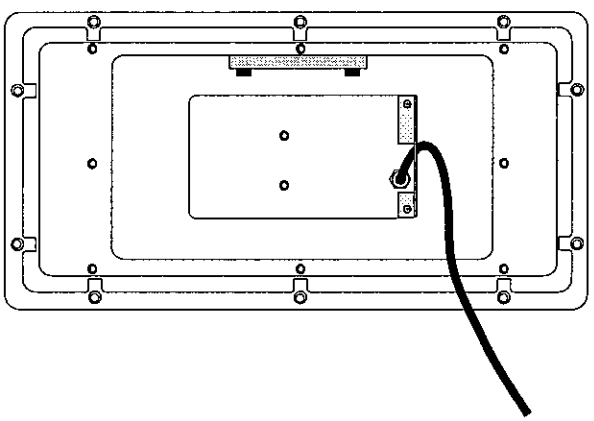
5



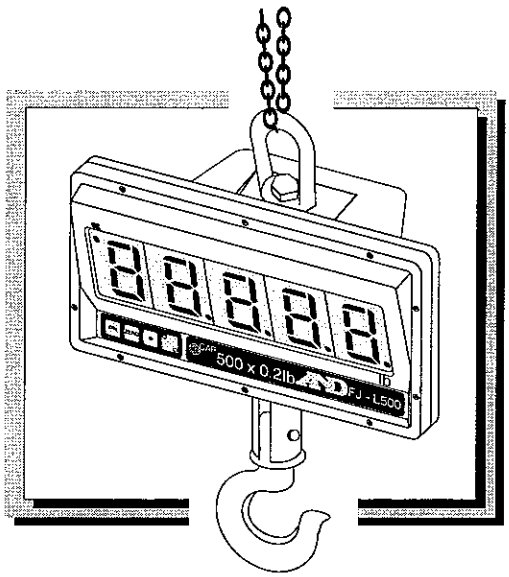
▶ Support the loadcell and remove the bolt and the bow nut.

⚠ A suitable size ring spanner will be required for this step for most scale capacities, however for the 5t (10000 lb) scales a special spanner to DWG.#C92-036 will be needed .

6



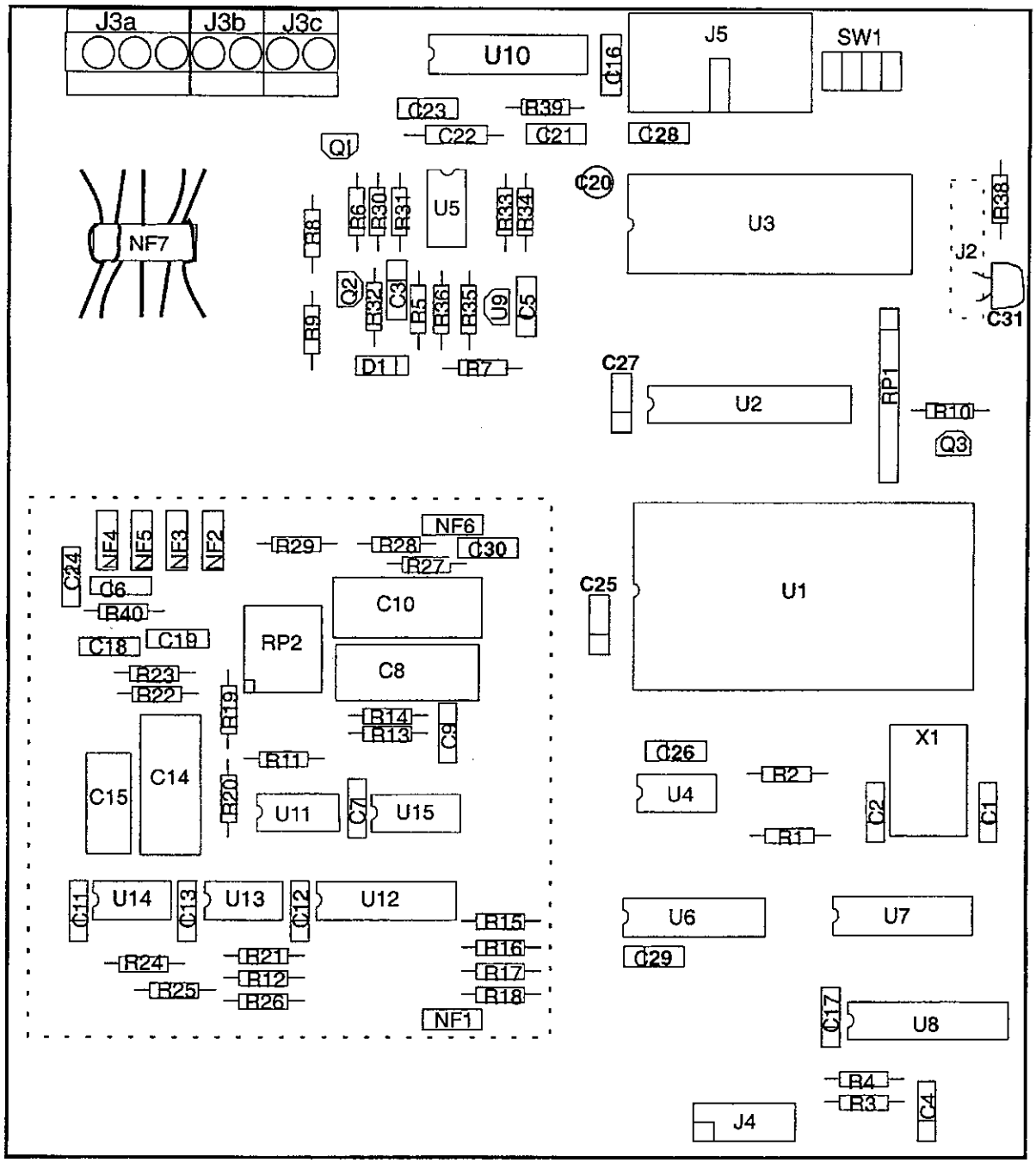
▶ The loadcell can now be removed from the casting.



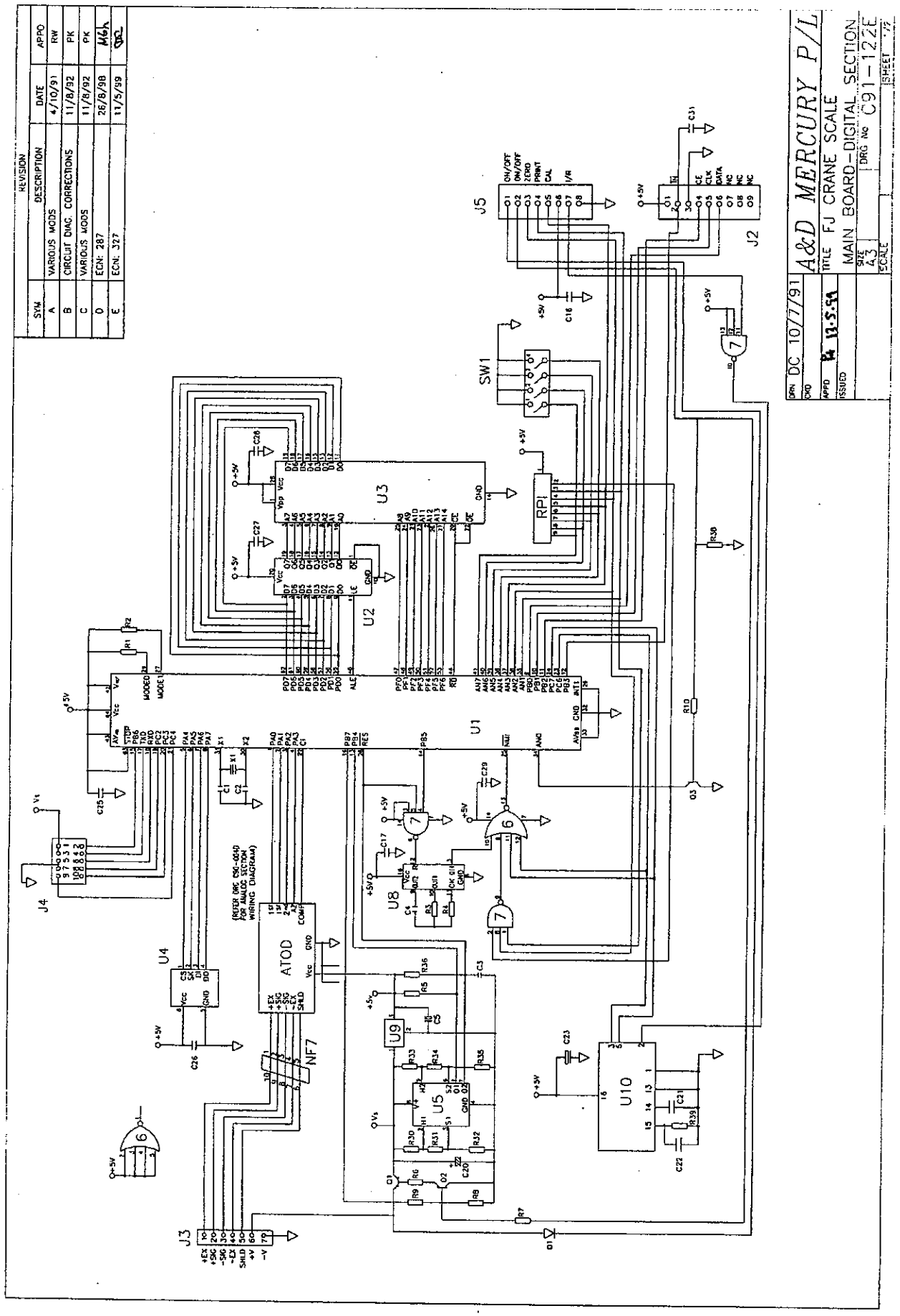
FJ Series • Section B

Main Board

The Main Board Component Layout



The Main Board Circuit Diagram



The Main Board Circuit Description

This board contains the microprocessor, the analogue to digital convertor (A/D), the remote controller decoder and the power supply circuitry.

When the scale is off it may be turned on by pressing the ON/OFF button. This will turn on Q2 and hence Q1 thus supplying power to the regulator U9. The input voltage to U9 is monitored by U5. Once the processor begins to operate it will hold Q2 on by asserting PB7.

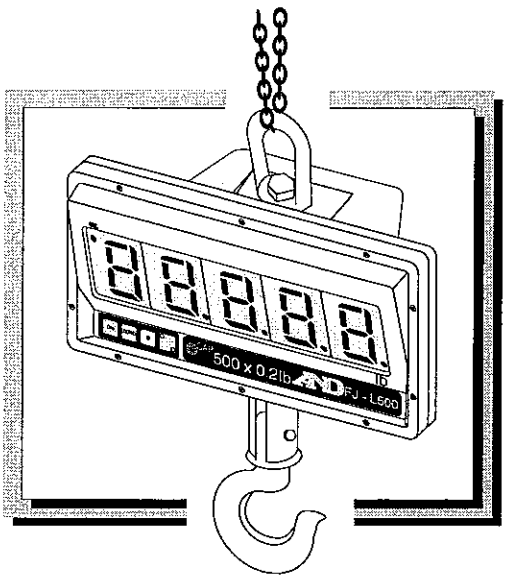
The FJ crane scale has a power saving feature which allows a battery life of up to 600 hours. To achieve this the scale has a 'sleep' operational mode which changes the update rate of the display from the normal 4 times per second down to once per second. This change occurs when the weight has been stable for some time. The scale returns to the normal 'wake'mode when the weight on the hook changes. U6, U7 and U8 provide the logic and timing functions for the sleep mode. The A/D circuitry is located within the metal box to provide R.F.I. protection and is a dual slope convertor with the microprocessor, U1, performing the counting and timing functions directly. U4 is an E^2PROM which contains the set-up and calibration data. U10 is part of the remote control receiver circuit and accepts serial data from the keyboard.

The Main Board Parts List

Circuit Reference	Part Number	Description
C1	RD15-10p-J-50-NPO	10pF 5% 50V Monolithic capacitor
C2	RD15-10p-J-50-NPO	10pF 5% 50V Monolithic capacitor
C3	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C4	EC04-1n-K-100-X7R	1nF 10% 100V X7R Monolithic capacitor
C5	ETPW-47u-M-25V	47uF 20% 25V Tantalum capacitor
C6	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C7	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C8	MKS4-4.7-10-63	4.7uF 10% 63V MKT capacitor
C9	EC04-1n-K-100-X7R	1nF 10% 100V X7R Monolithic capacitor
C10	MKS4-4.7-10-63	4.7uF 10% 63V MKT capacitor
C11	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C12	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C13	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C14	MKC4-1-5-100	1uF 5% 100V Polycarbonate capacitor
C15	MKP4-0.1u-K-250	0.1uF 10% 250V Polyprpolene capacitor
C16	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C17	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C18	EC04-1n-K-100-X7R	1nF 10% 100V X7R Monolithic capacitor
C19	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C20	RB470/16	470uF 16V RB Electrolytic capacitor
C21	EC04-1n-K-100-X7R	1nF 10% 100V X7R Monolithic capacitor
C22	1nF250	1nF 1% 250V Axial polystyrene capacitor
C23	TANT-10uF-M-16V	10uF 20% 16V Tantalum capacitor
C24	EC04-0.1u-M-50-Z	0.1uF 20% 50VZ5U Monolithic capacitor
C25	EC04-10n-K-100-X	10nF10% 100V X7R Monolithic capacitor
C26	EC04-10n-K-100-X	10nF10% 100V X7R Monolithic capacitor
C27	EC04-10n-K-100-X	10nF10% 100V X7R Monolithic capacitor
C28	EC04-10n-K-100-X	10nF10% 100V X7R Monolithic capacitor
C29	EC04-10n-K-100-X	10nF10% 100V X7R Monolithic capacitor
C30	TAP-2.2uF-M-16V	2.2uF 20% 16V Tantalum capacitor
C31		0.47uF 35V Tantalum capacitor
D1	1N4148	Small signal diode
J2	174-075-9	Display connector
J3	P2034/5	power supply terminal block
J4	P5410	IDC 10W Pin Header
J5	171-826-8	Key board connector
NF1	EXC-EMT101B	100pF EMI filter
NF2	EXC-EMT102B	1000pF EMI filter
NF3	EXC-EMT102B	1000pF EMI filter
NF4	EXC-EMT102B	1000pF EMI filter
NF5	EXC-EMT102B	1000pF EMI filter
NF6	EXC-EMT102B	1000pF EMI filter
NF7	H5AT20X5X10	Toroid
Q1	BC327	PNP transistor
Q2	BC337	NPN transistor

Circuit Reference	Part Number	Description
Q3	BC337	NPN transistor
R1	MRS25/100K	100K 1% 0.6W M/F resistor
R2	MRS25/100K	100K 1% 0.6W M/F resistor
R3	MRS25/33K	33K 1% 0.6W M/F resistor
R4	MRS25/120K	120K 1% 0.6W M/F resistor
R5	MRS25/100K	100K 1% 0.6W M/F resistor
R6	MRS25/22K	22K 1% 0.6W M/F resistor
R7	MRS25/100K	100K 1% 0.6W M/F resistor
R8		Not Fitted
R9	MRS25/120K	120K 1% 0.6W M/F resistor
R10	MRS25/120K	120K 1% 0.6W M/F resistor
R11	MRS25/2K2	2K2 1% 0.6W M/F resistor
R12	MRS25/1M	1M 1% 0.6W M/F resistor
R13	MRS25/15K	15K 1% 0.6W M/F resistor
R14	MRS25/15K	15K 1% 0.6W M/F resistor
R15	MRS25/100R	100R 1% 0.6W M/F resistor
R16	MRS25/100R	100R 1% 0.6W M/F resistor
R17	MRS25/100R	100R 1% 0.6W M/F resistor
R18	MRS25/100R	100R 1% 0.6W M/F resistor
R19	MRS25/3K3	3K3 1% 0.6W M/F resistor
R20	MRS25/1K5	1K5 1% 0.6W M/F resistor
R21	MRS25/3K9	3K9 1% 0.6W M/F resistor
R22	MRS25/220K	220K 1% 0.6W M/F resistor
R23	MRS25/15K	15K 1% 0.6W M/F resistor
R24	MRS25/1M	1M 1% 0.6W M/F resistor
R25	MRS25/1K	1K 15 0.6W M/F resistor
R26	MRS25/220K	220K 1% 0.6W M/F resistor
R27	MRS25/33K	33K 1% 0.6W M/F resistor
R28	MRS25/150R	150R 1% 0.6W M/F resistor
R29	MRS25/150R	150R 1% 0.6W M/F resistor
R30	MRS25/7K68	7K68 1% 0.6W M/F resistor
R31	MRS25/340K	340K 1% 0.6W M/F resistor
R32	MRS25/100K	100K 1% 0.6W M/F resistor
R33	MRS25/7K68	7K68 1% 0.6W M/F resistor
R34	MRS25/316K	316K 1% 0.6W M/F resistor
R35	MRS25/100K	100K 1% 0.6W M/F resistor
R36	MRS25/100K	100K 1% 0.6W M/F resistor
R38	MRS25/100K	100K 1% 0.6W M/F resistor
R39	MRS25/39K	39K 1% 0.6W M/F resistor
R40	MRS25/820K	820K 1% 0.6W M/F resistor
RP1	RNS9P8R/100K	Resistor network 100K, 9pin 8 resistor DIL
RP2		ADC RR133A Resistor Pack
SW1	DIR04S	4 WAY DIP switch
U1	UPD78C10AGQ-36	Microprocessor IC
U2	74HC573	Octal latch IC
U3SKT	ICM28	IC Socket 28 way machine pin
U3	27C256-10	EPROM IC
U4	93C46	EEPROM IC
U5	ICL7665	Under/Over voltage detector IC
U6	4002B	NOR gate IC
U7	4023B	3-Input NAND gate
U8	4060B	Timer IC
U9	LM2936Z-5	Voltage Regulator

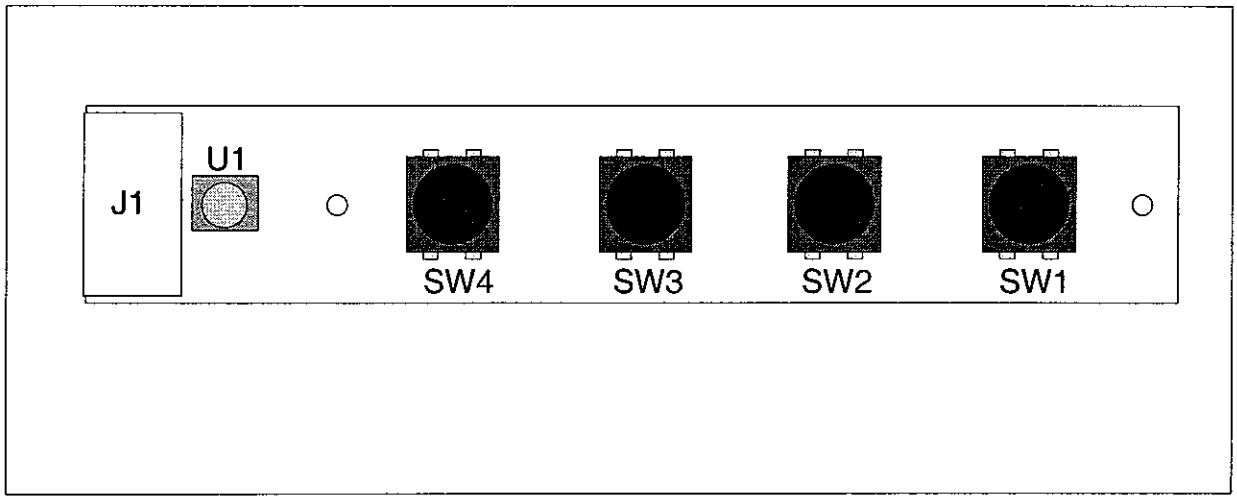
Circuit Reference	Part Number	Description
U10	TC9149P	IR Receiver IC
U11	LT1013	Dual OP amp IC
U12	4066B	Analogue switch IC
U13	UPC4082C	Dual OP amp IC
U14	LM358	Dual OP amp IC
U15	UPC4082C	Dual OP amp IC
X1	XTAL4Mhz	Crystal 4Mhz



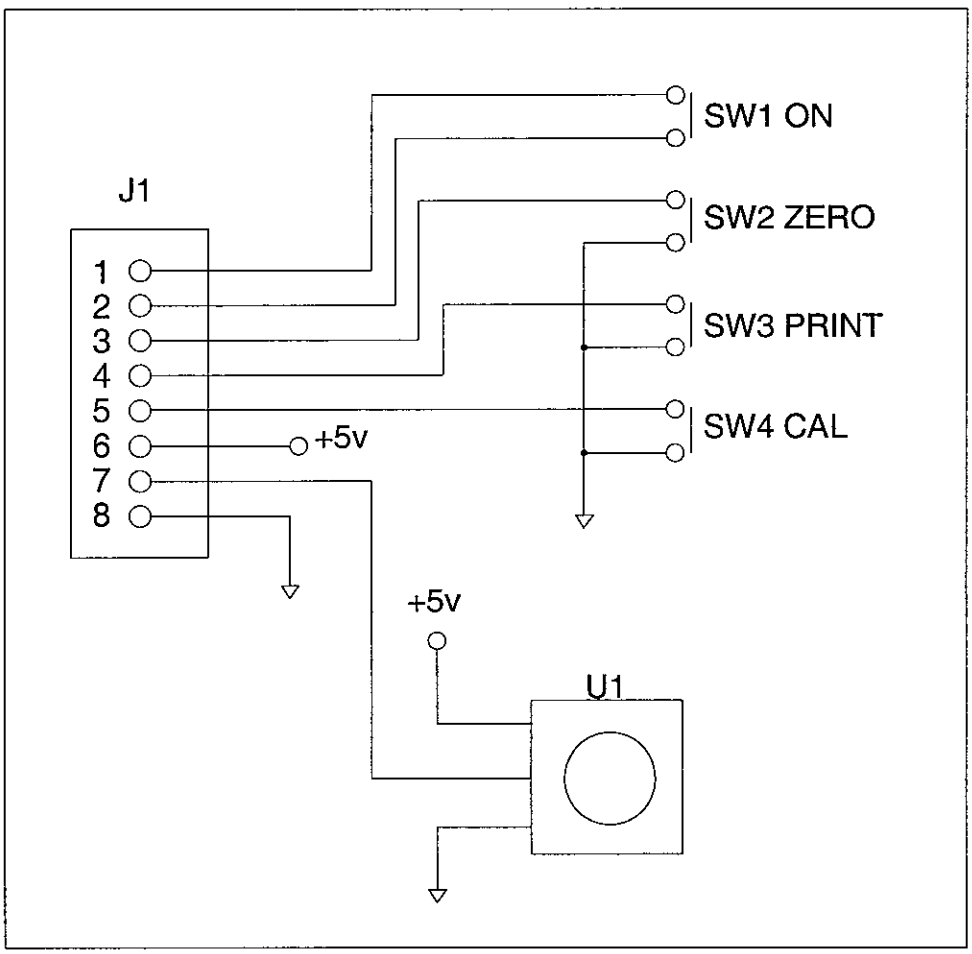
FJ Series • Section C

Switch Board

The Switch Board Component Layout



The Switch Board Circuit Diagram

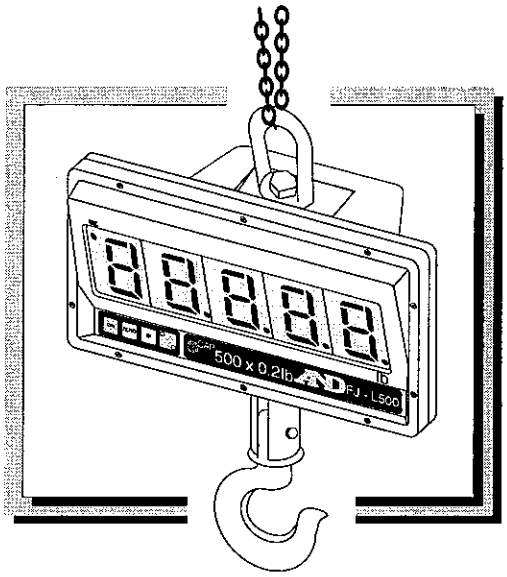


The Switch Board Circuit Description

This board contains the 4 push button switches and the remote control receiver. The board is connected to the main board via a cableform which is one to one between J1 on the switch board and J5 on the main board.

The Switch Board Parts List

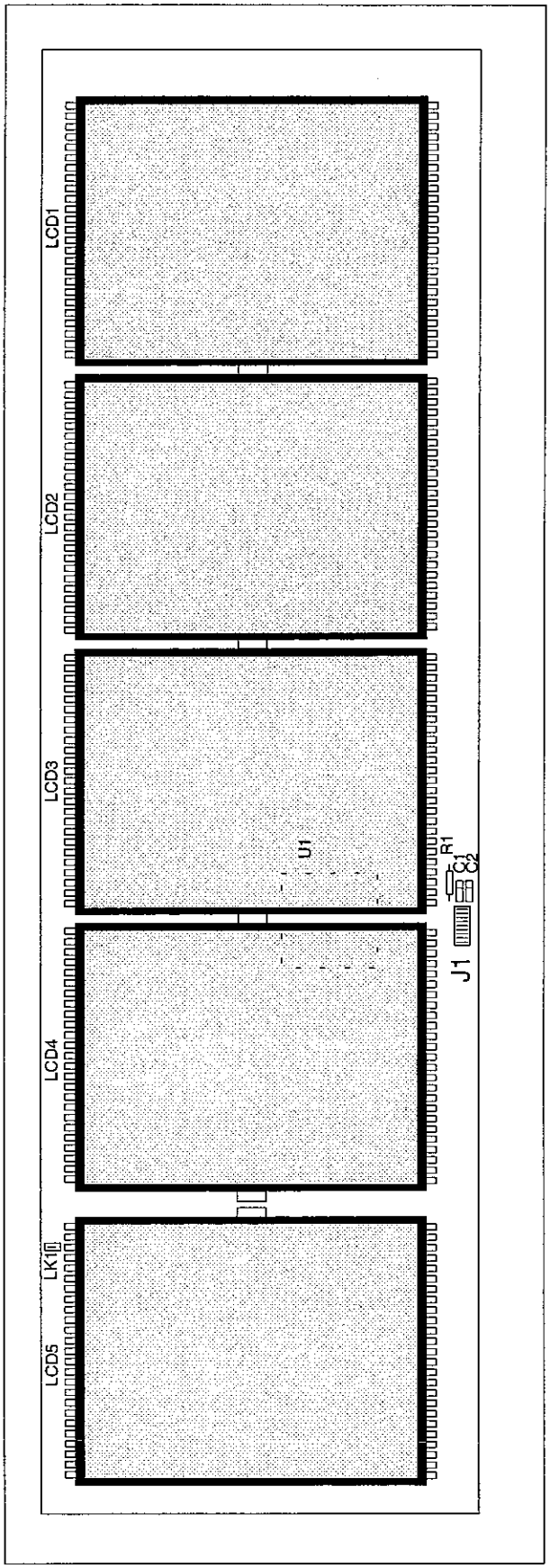
Circuit Reference	Part Number	Description
SW1	ECSK:KHC10901	ALPS SK:KHC10901
SW2	ECSK:KHC10901	ALPS SK:KHC10901
SW3	ECSK:KHC10901	ALPS SK:KHC10901
SW4	ECSK:KHC10901	ALPS SK:KHC10901
SW1C	MA07:B46401A	ADC 07:B46401A Switch Top
SW2C	MA07:B46401A	ADC 07:B46401A Switch Top
SW3C	MA07:B46401A	ADC 07:B46401A Switch Top
SW4C	MA07:B46401A	ADC 07:B46401A Switch Top
LED1	ECUE:IS1U60	SANYO LC7582 Integrated Circuit
J1		
SP1		SPACER 6.4mm dia., 5mm high, grey



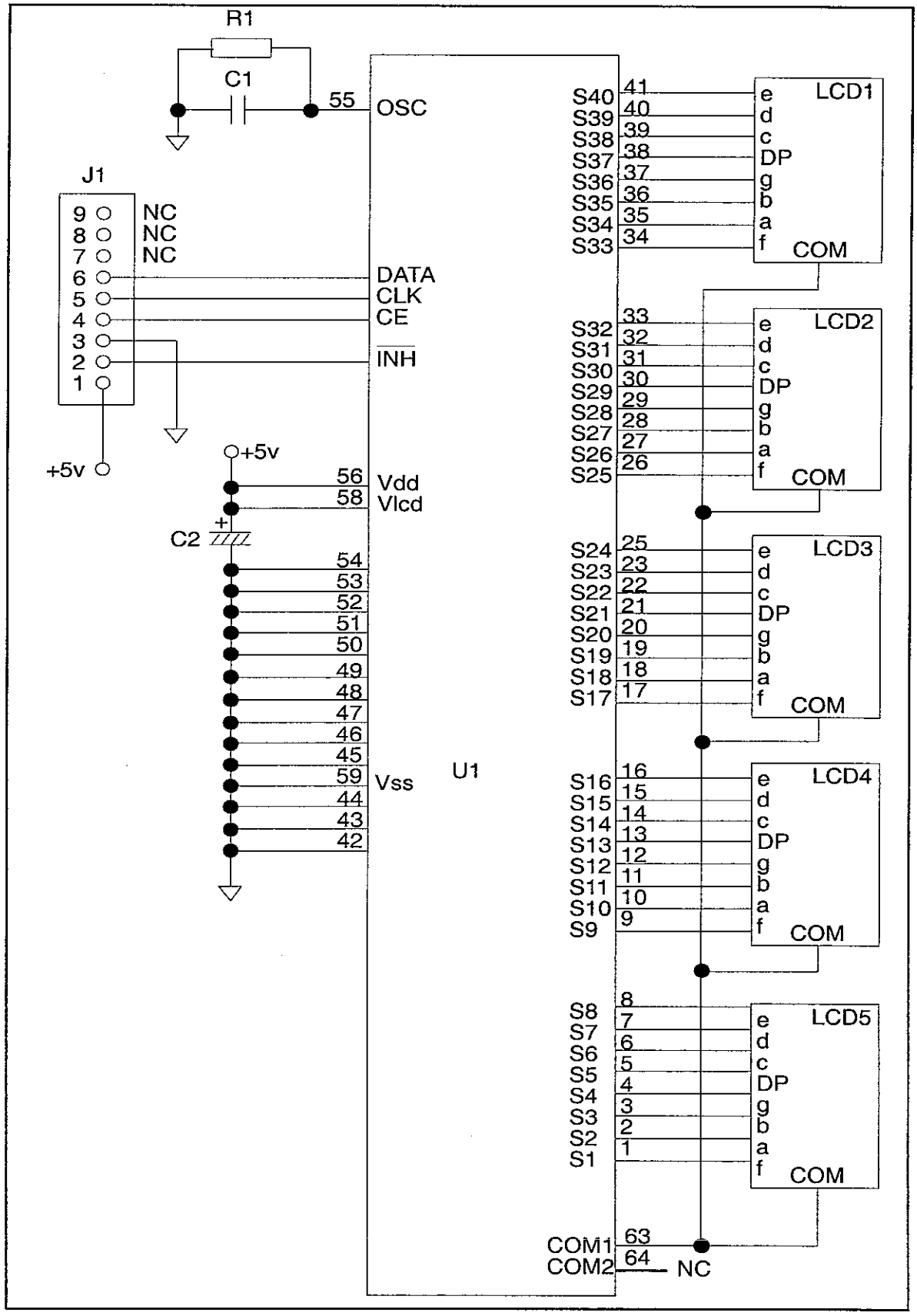
FJ Series • Section D

Display Board

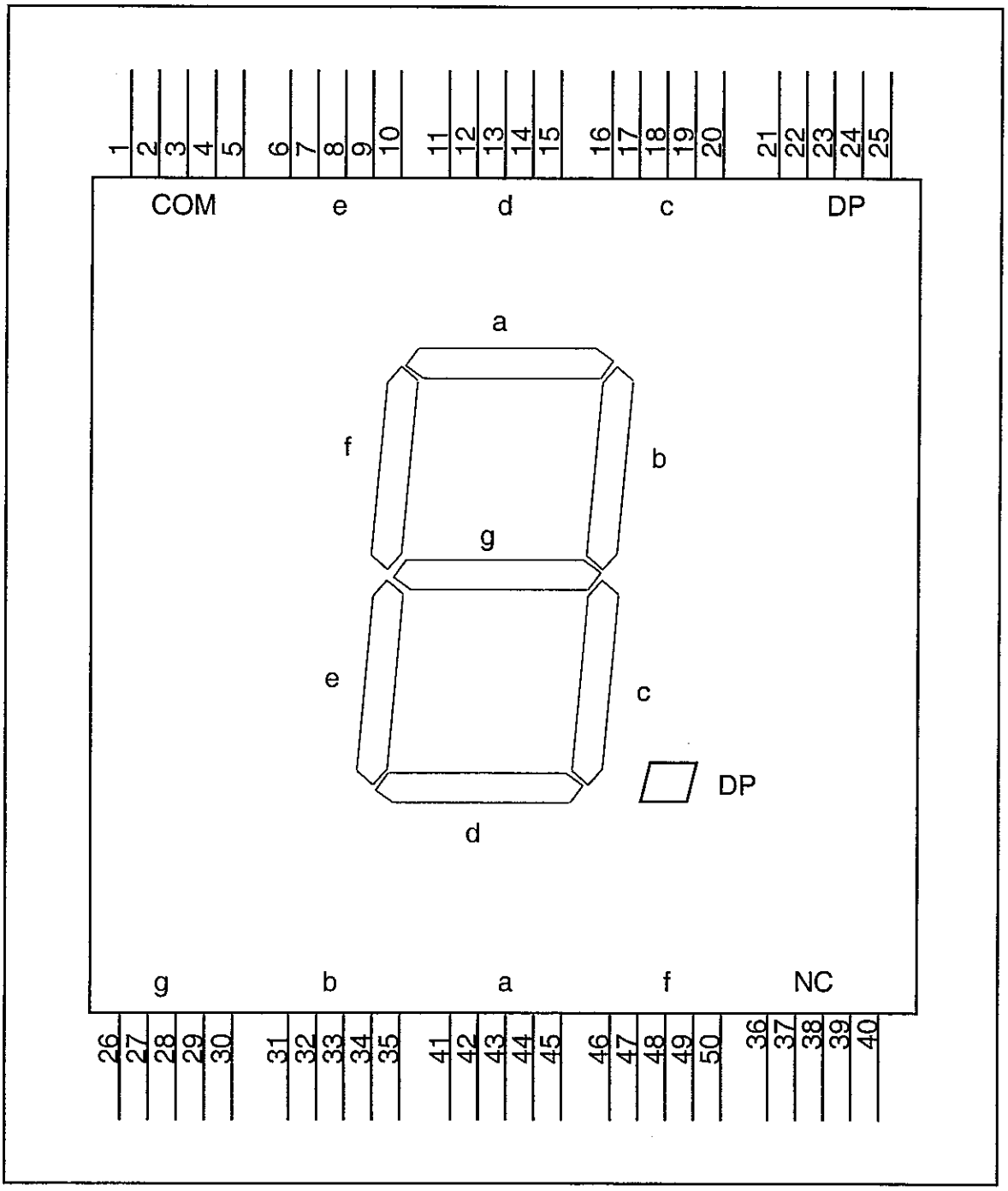
The Display Board Component Layout



The Display Board Circuit Diagram



Liquid Crystal Digit Detail

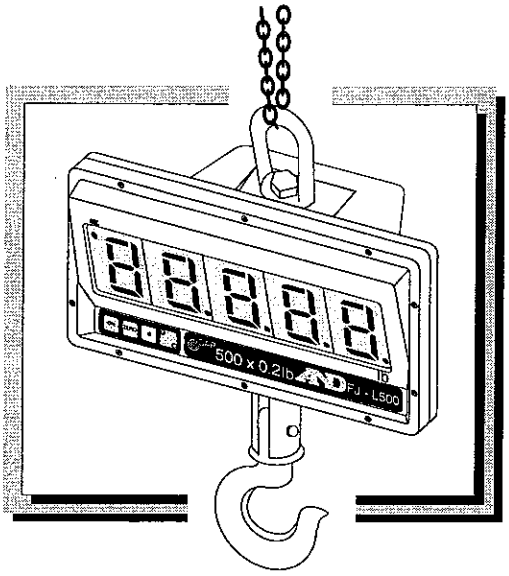


The Display Board Circuit Description

This board contains the 5 single digit displays and an LCD display driver. The left most display is inverted, with the decimal point to the top left, to allow this decimal point to be used as a centre of zero annunciator. The main board is mounted directly onto the back of the display board and is connected via J2 on the main board.

Display Board Parts List

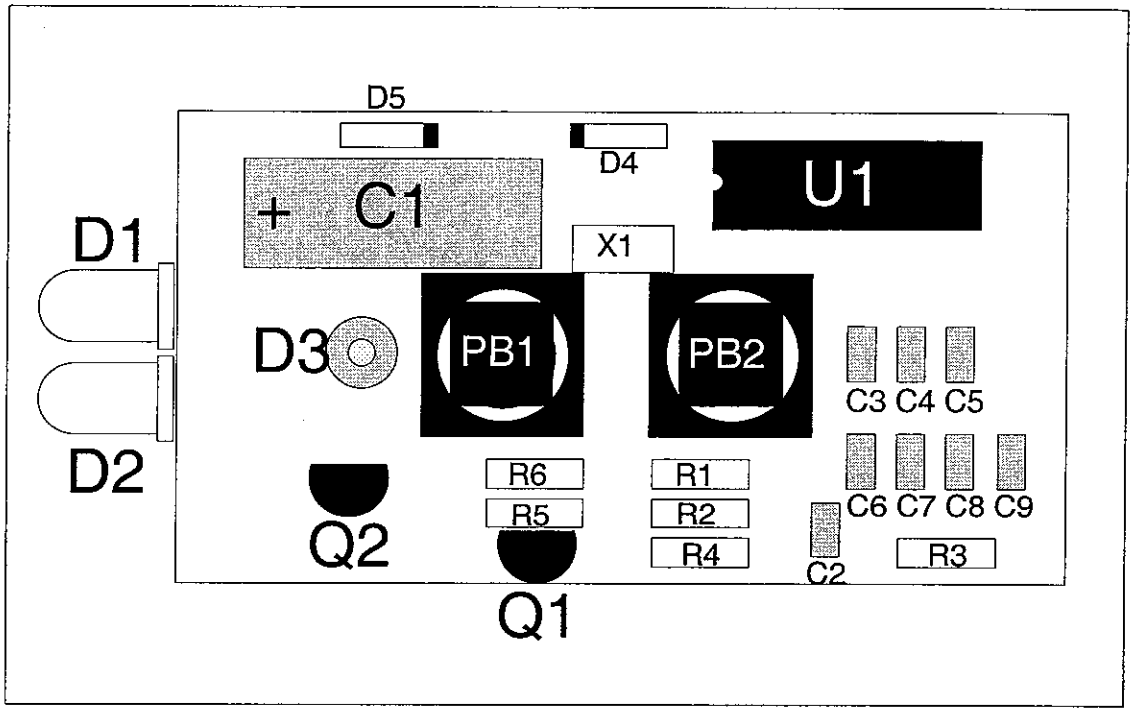
Circuit Reference	Part Number	Description
C1	ECCT:10UBB	10pF 50V 5% NPO Monolithic capacitor
C2	ECCC:680PF	10uF 16V 10% Tantalum capacitor
J1	ECJT:174074-9	AMP 174-074-9 Connector
LCD1 to 5	ECEP:261-R12	Philips LTD261R-12 Liquid crystal display
R1	ECRF:51K	Resistor MK2 51 kohm 1% 0.6W metal film
U1	ECUD:7582	Sanyo LC7582E



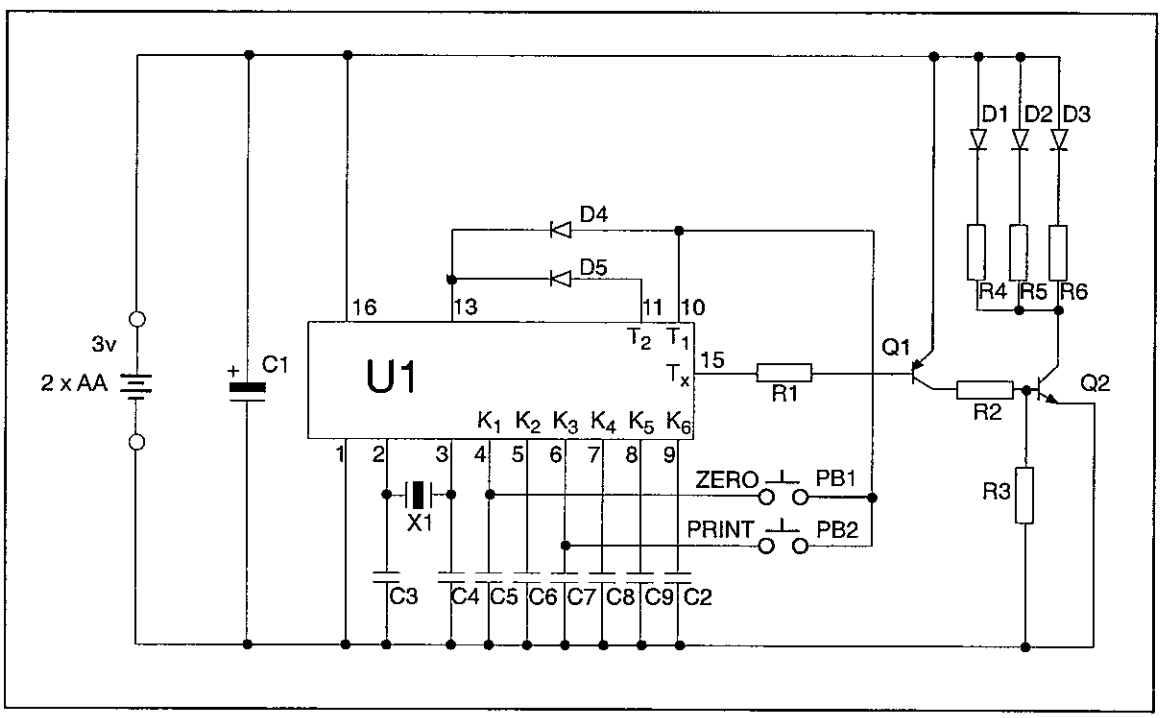
FJ Series • Section E

Remote Controller Board

The Remote Board Component Layout



The Remote Board Circuit Diagram

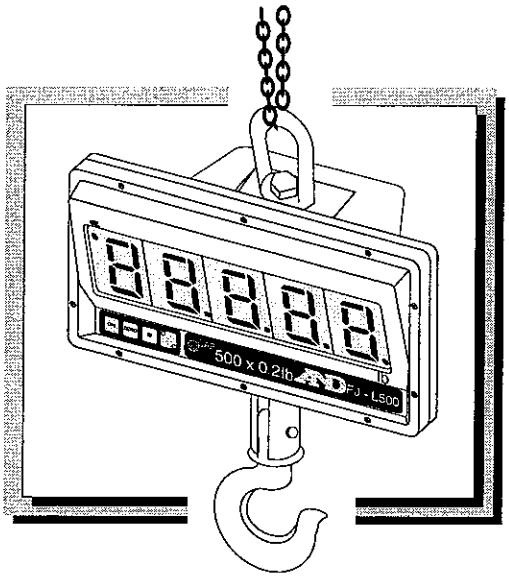


The Remote Board Circuit Description

This board contains the remote controller transmitter circuit. The i.c.p. U1 is controlled by the 2 push buttons PB1 & PB2 to provide the Zero & Print functions. The output from U1 on pin 15 drives LED's D1 thro' D3 via the transistor circuit formed by Q1/Q2. The diodes D1 and D2 are the I.R. transmitter diodes whilst D3 is a visible light diode to give confirmation that the transmitter is functioning. The timing for U1 is provided by capacitors C2 thro' C9 with the resonator X1 providing the clock frequency. Power for the circuit is provided by 2 x AA size dry batteries.

The Remote Board Parts List

Circuit Reference	Part Number	Description
C1	ECCK:100UBT	100 uF 16v Electrolytic Capacitor
C2	ECCC:100PF	100pF Monolithic Capacitor
C3	ECCC:100PF	100pF Monolithic Capacitor
C4	ECCC:100PF	100pF Monolithic Capacitor
C5	ECCC:100PF	100pF Monolithic Capacitor
C6	ECCC:100PF	100pF Monolithic Capacitor
C7	ECCC:100PF	100pF Monolithic Capacitor
C8	ECCC:100PF	100pF Monolithic Capacitor
C9	ECCC:100PF	100pF Monolithic Capacitor
D1	ECDI:TLN115A	TOSHIBA TLN115A IR Diode
D2	ECDI:TLN115A	TOSHIBA TLN115A IR Diode
D3	ECDL:2531	STANLEY SPR2531DEB LED
D4	ECDI:1N4148	IN4148 Diode
D5	ECDI:1N4148	IN4148 Diode
R1	ECRD:47K	47 kohm Carbon Resistor
R2	ECRC:47R	47 ohm Carbon Resistor
R3	ECRC:10K	10 kohm Carbon Resistor
R4	ECRC:3R3	3.3 ohm Carbon Resistor
R5	ECRC:3R3	3.3 ohm Carbon Resistor
R6	ECRC:100R	100 ohm Carbon Resistor
Q1	ECQT:BC558	PHILIPS BC558 Transistor
Q2	ECQT:BC337	PHILIPS BC337 Transistor
U1	ECUE:9148	TOSHIBA TC9148 Integrated Circuit
X1	ECXT:CSB455E	MURATA CSB455E Resonator
PB1	ECSK:KHC10901	ALPS SK:KHC10901 Switch
PB2	ECSK:KHC10901	ALPS SK:KHC10901 Switch
PB1C	MA07:B46401A	ADC 07:B46401A Key Cap
PB2C	MA07:B46401A	ADC 07:B46401A Key Cap



FJ Series • Section F

Initialisation

Software Parameter Settings

This section describes the various software parameters and their use. The set information is held in a non-volatile memory within the scale.

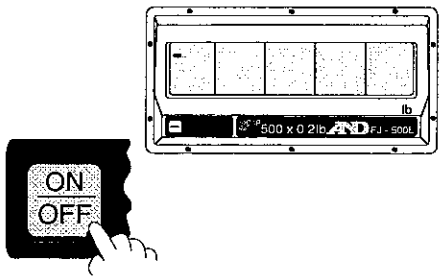
You will need to reset these parameters after a memory loss or after installing a new main circuit board.

Characteristic Functions

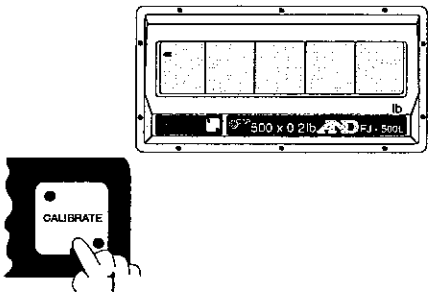
Confidential Information

This section covers functions and settings which are not available to the end user as these functions may be used for fraudulent or other illegal activities.

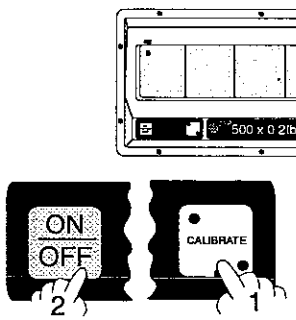
1 Turn the scale OFF by pressing the ON/OFF button.



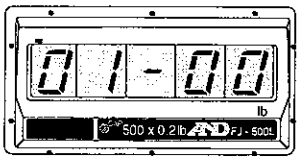
2 Remove the calibration cover and press and hold the calibrate button.



3 While holding the calibrate button press the ON/OFF button to turn the scale ON.



The display will show the software version number.



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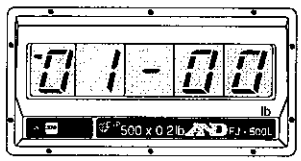
4 Press and hold the ZERO button.



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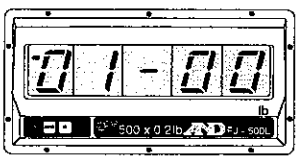
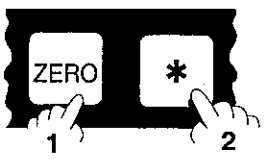
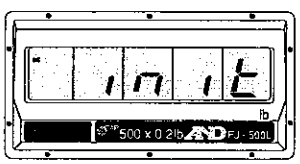
5 While holding the ZERO button press the * button.



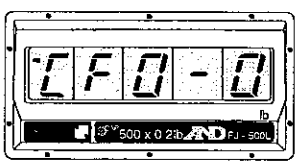


The scale will show init while the initialisation is carried out.



⚠ **CFU the measurement unit.**

6 Press the CALIBRATE button. The scale will show the previous setting : CFU-U or CFU-1.



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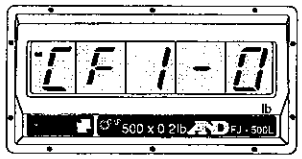
7 Use the * button to select the required value.

CFU-U sets System International (**kilogrammes**).

CFU-1 sets United States (**pounds**).

⚠ CF 1 the scale model.

8 Press the CALIBRATE button. The scale will show CF 1-n the previous setting.



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9 Use the * button to select the required value from the table.

Setting	System International	United States
CF 1-0	CS-200k	CS-500l
CF 1-1	CS-500k	CS-01kl
CF 1-2	CS-001t	CS-02kl
CF 1-3	CS-002t	CS-05kl
CF 1-4	CS-005t	CS-10kl
CF 1-5	CS-010t	CS-20kl

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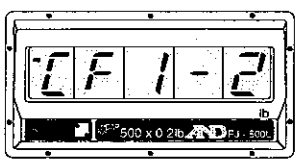
10 When the correct setting is displayed press the CALIBRATE button to store the settings into memory.



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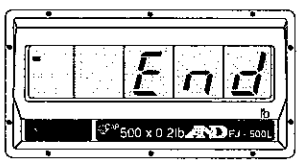
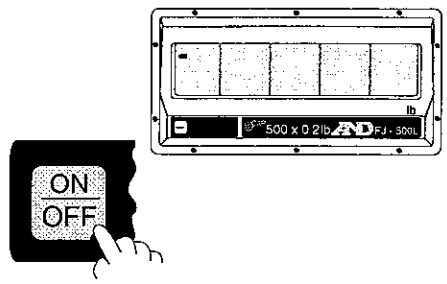
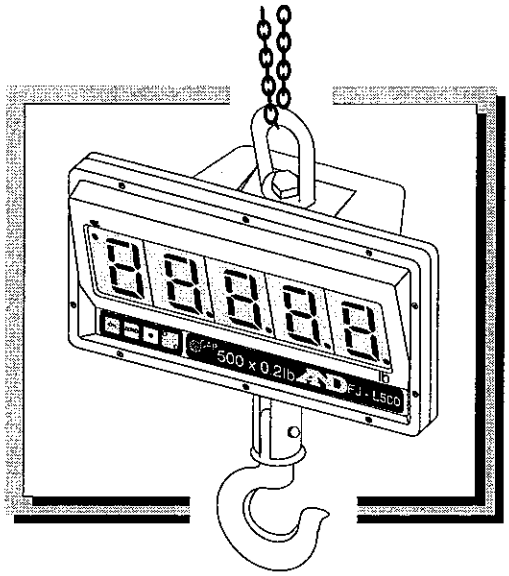
11 The display will show End.



12 Press the ON/OFF button to leave the routine.

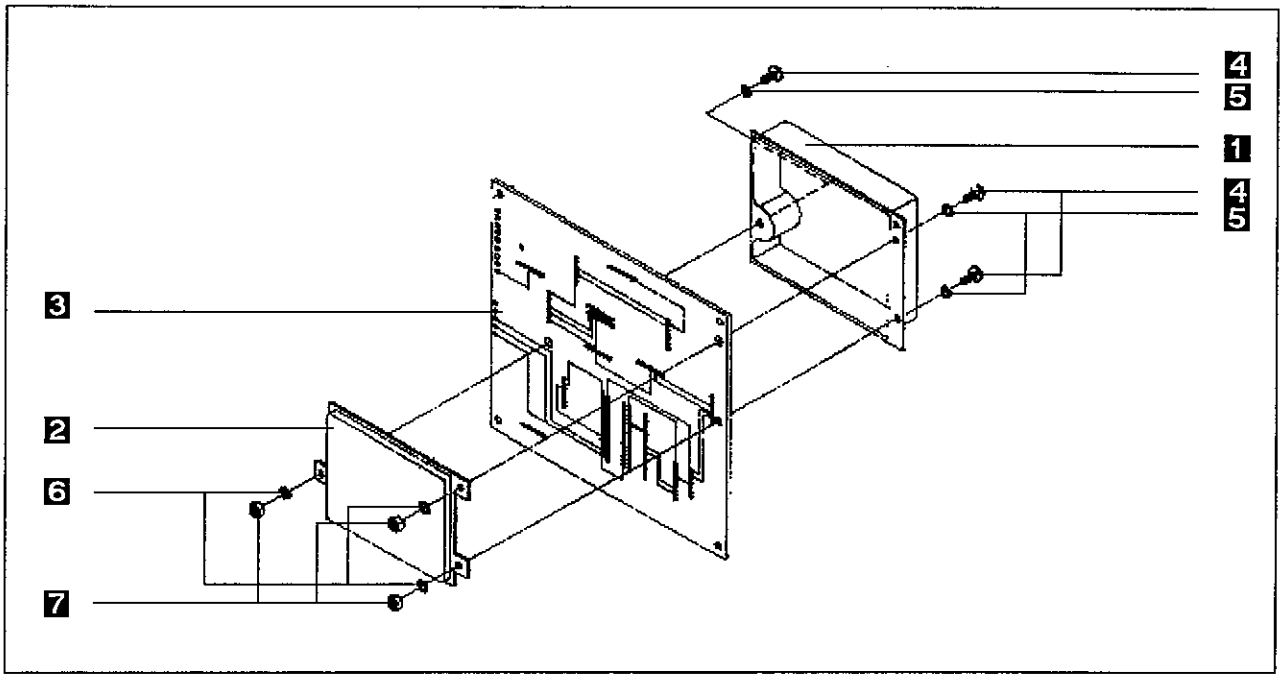




FJ Series • Section G

Parts Locate

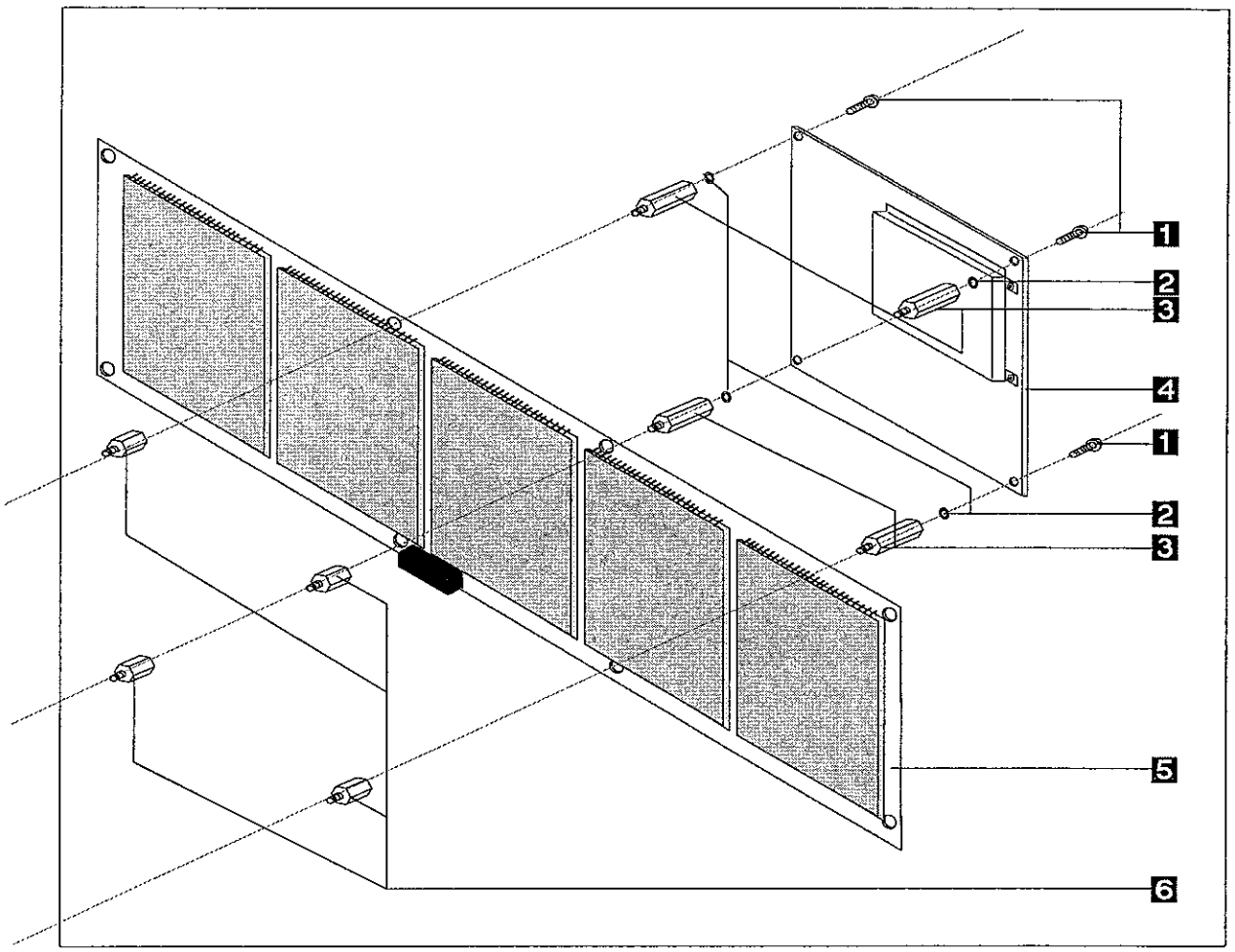
Main Board Analog Shield Assembly



Parts List

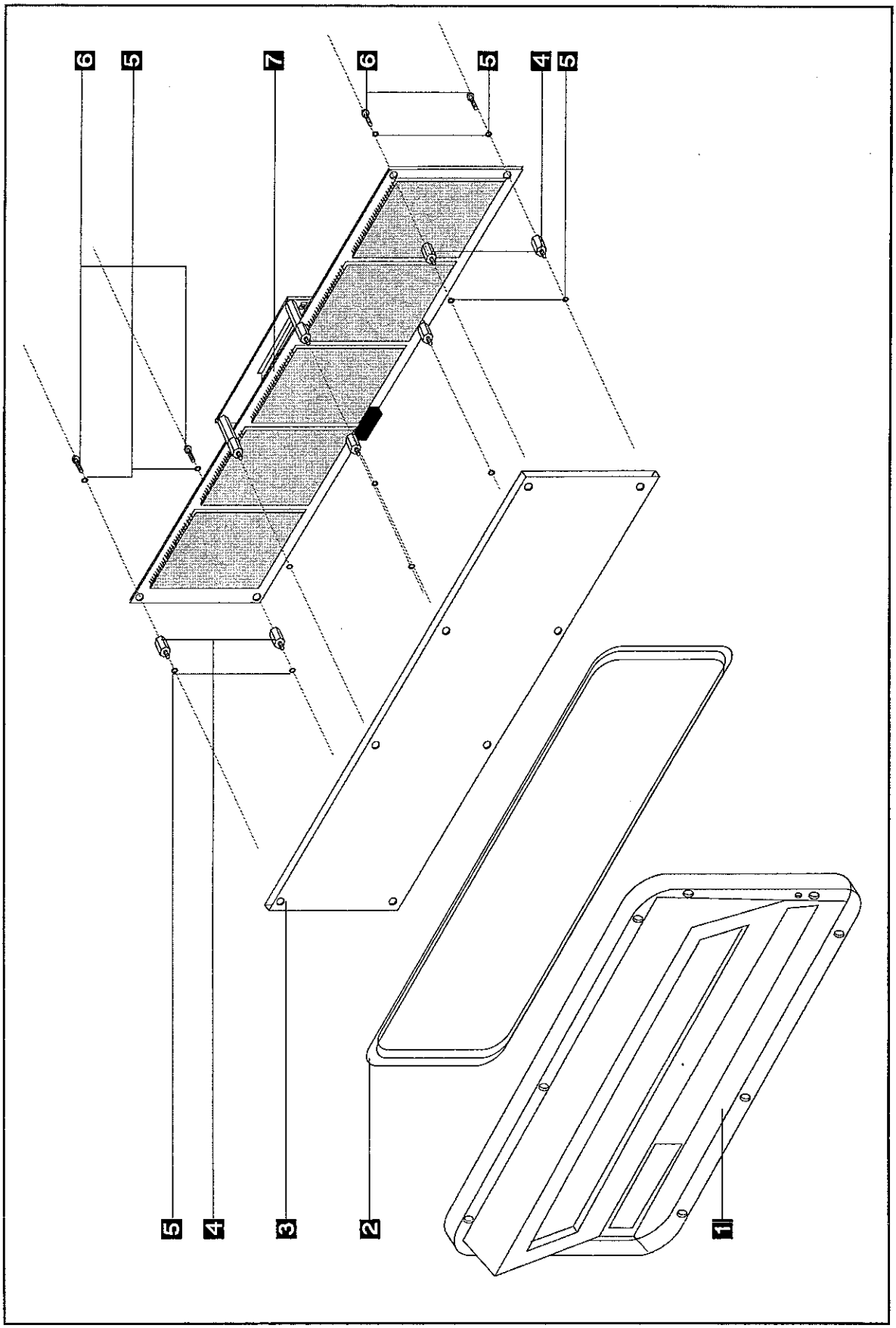
Reference	Part Number	Description
1	MC31535.002	MAIN BOARD SHIELD BOX 2
2	MC31538.002	MAIN BOARD SHIELD BOX 1
3		MAIN BOARD ASSEMBLY
4		SCREW
5		WASHER
6		WASHER
7		NUT

Main Board to Display Board



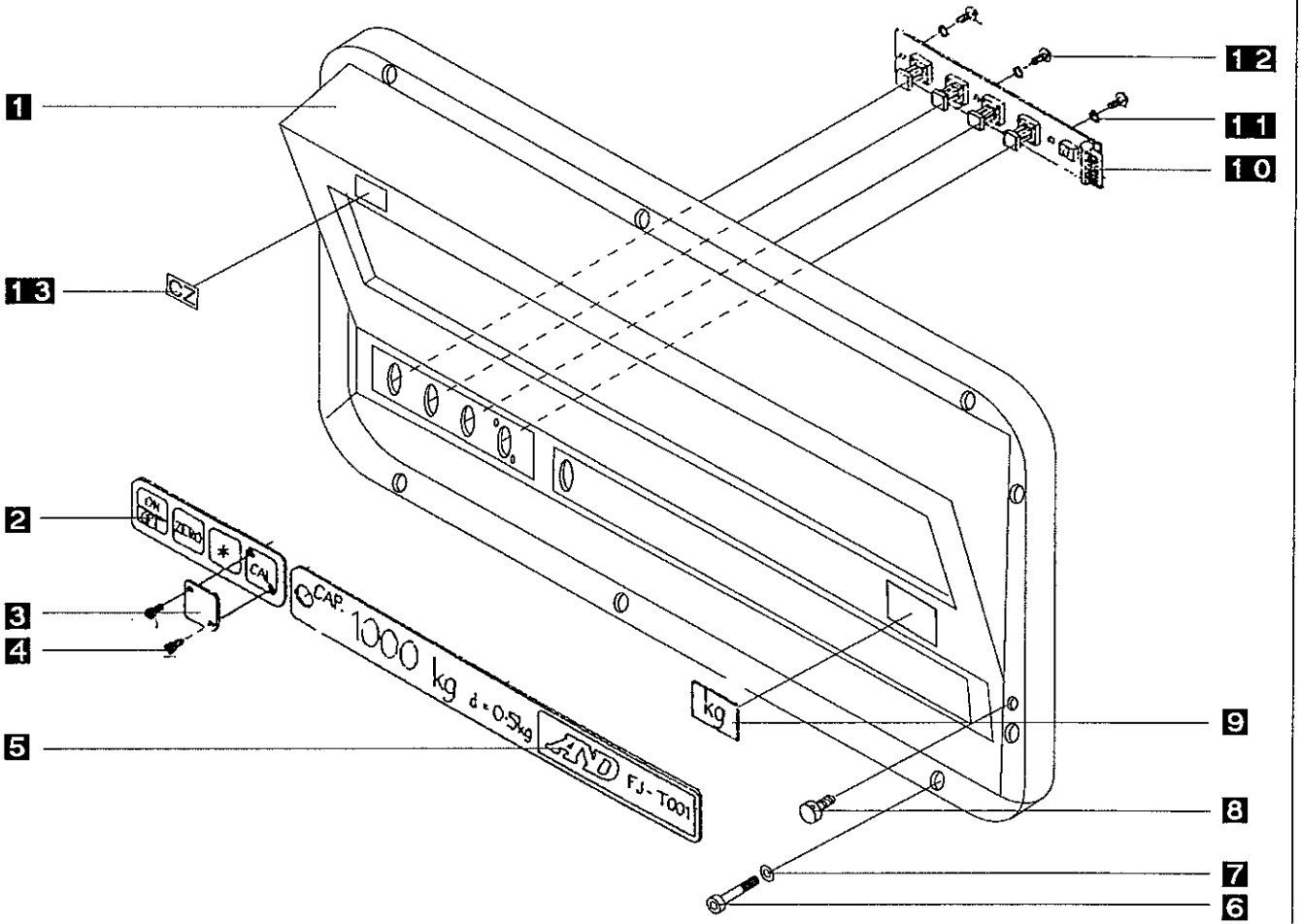
Reference	Part Number	Description
1		SCREW
2		WASHER
3		SPACER
4		MAIN BOARD
5		DISPLAY BOARD
6		SPACER

Boards to Casting Assembly



Reference	Part Number	Description
1		FRONT CASTING
2		GASKET
3		WINDOW
4		SPACER
5		WASHER
6		SCREW
7		BOARD ASSEMBLY

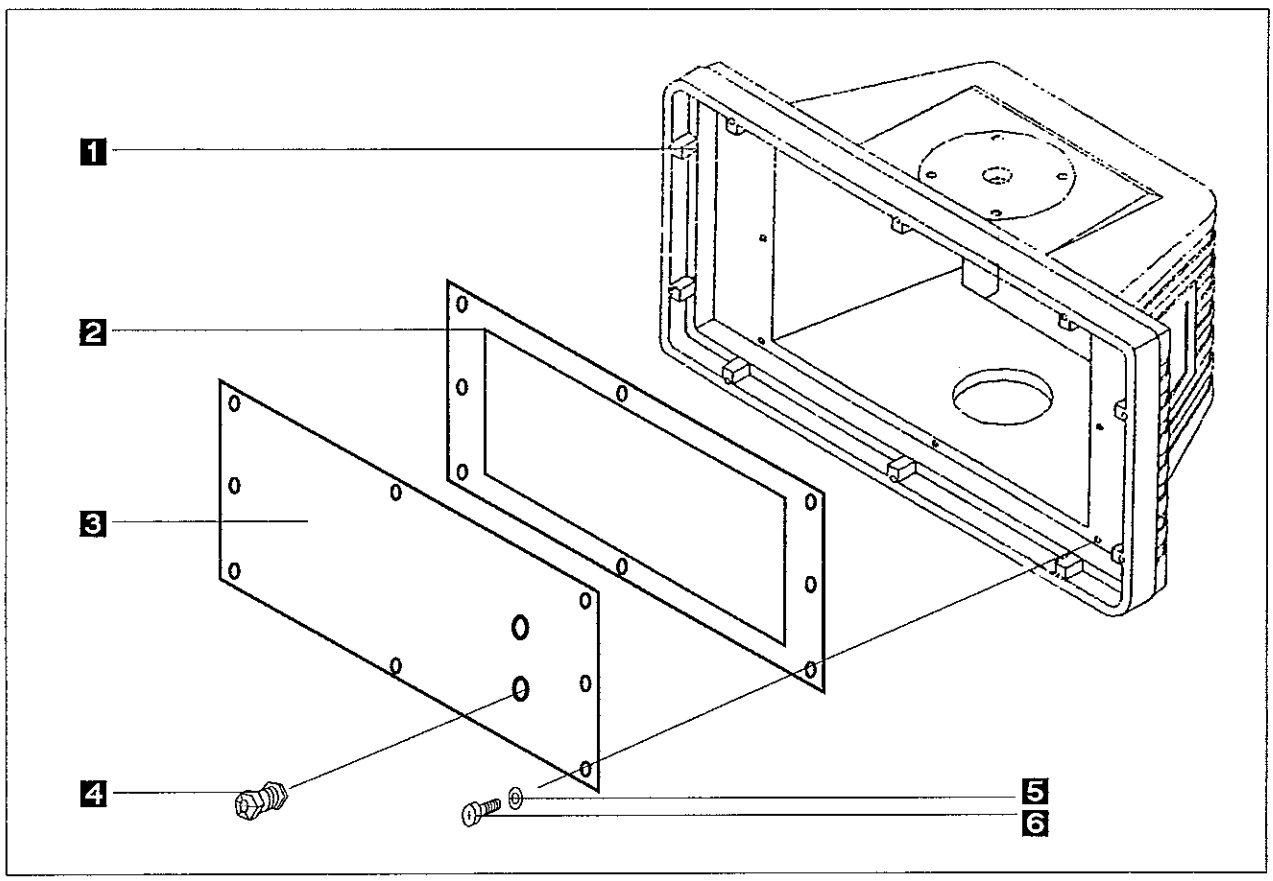
Switch Board to Front Casting



Reference	Part Number	Description
1		FRONT CASTING
2	MC50531.000	KEY SHEET
3	MC31411.013	TAMPERPROOF PLATE
4		SCREW
5	MC50501.000	LABEL FRONT SHEET FJ-K200
	MC50502.000	LABEL FRONT SHEET FJ-K500
	MC50503.000	LABEL FRONT SHEET FJ-T001
	MC50504.000	LABEL FRONT SHEET FJ-T002
	MC50505.000	LABEL FRONT SHEET FJ-T005
	MC50511.000	LABEL FRONT SHEET FJ-L500
	MC50512.000	LABEL FRONT SHEET FJ-KL001
	MC50513.000	LABEL FRONT SHEET FJ-KL002
	MC50514.000	LABEL FRONT SHEET FJ-KL005
	MC50515.000	LABEL FRONT SHEET FJ-KL010
6		SCREW
7		WASHER
Reference	Part Number	Description

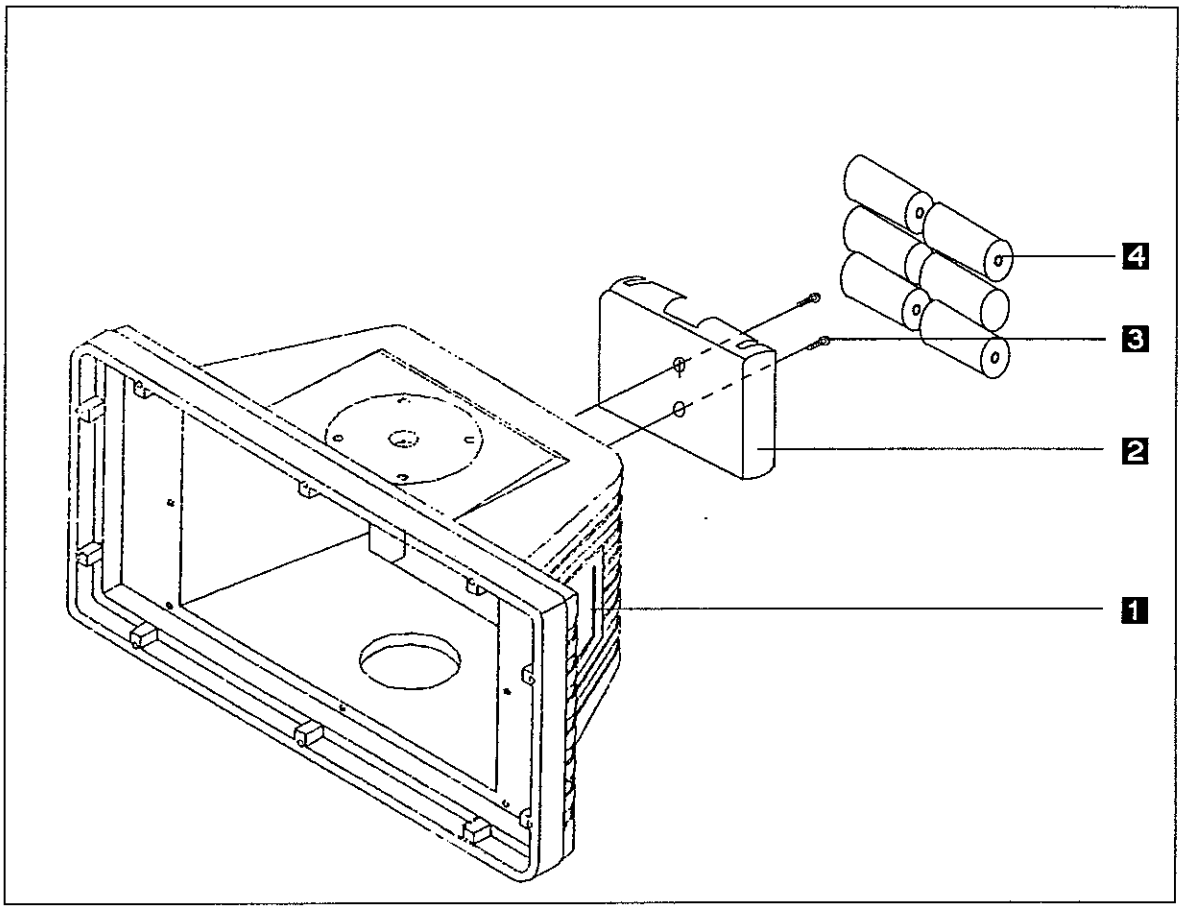
8	MC31405.005	LOCK BOLT
9		LABEL KILOGRAM kg FJ
		LABEL POUND lb FJ
10		ASSEMBLED SWITCH BOARD
11		WASHER
12		SCREW
13	MC50536.000	LABEL CZ FJ
14		CABLEFORM SWITCH BOARD TO MAIN BOARD

Inner Baffle Assembly



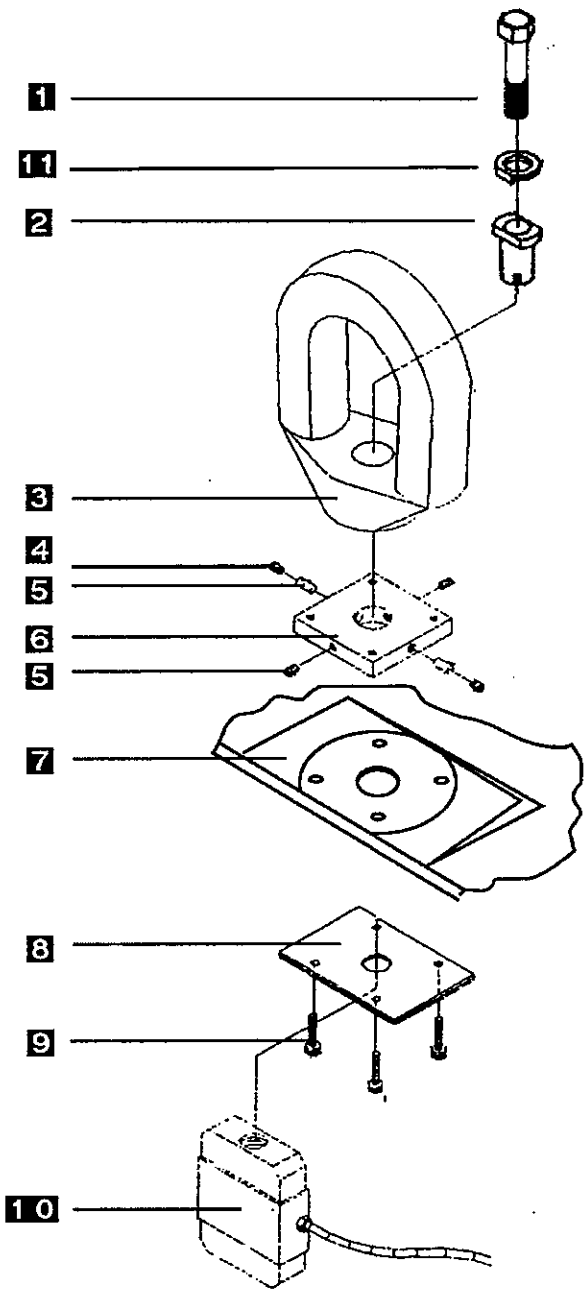
Reference	Part Number	Description
1	MC31426.014	REAR HOUSING FJ200kg
	MC31427.014	REAR HOUSING FJ500kg,1t
	MC31428.014	REAR HOUSING 2t
	MC31429.014	REAR HOUSING 5t
2	MC31508.021	BARRIER PLATE GASKET
3	MC31423.002	BARRIER PLATE
4		CABLE GLAND
5		WASHER
6	MC50536.000	SCREW

Battery Box



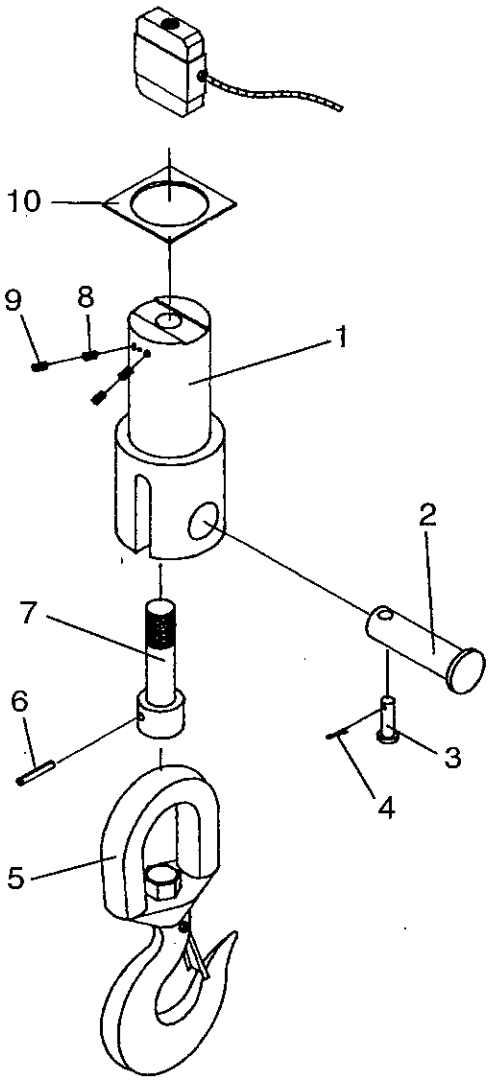
Reference	Part Number	Description
1	MC31426.014	REAR HOUSING FJ200kg
	MC31427.014	REAR HOUSING FJ500kg,1t
	MC31428.014	REAR HOUSING 2t
2		BATTERY HOLDER
3		SCREW
4		'D' SIZE BATTERY

Top Bow Assembly



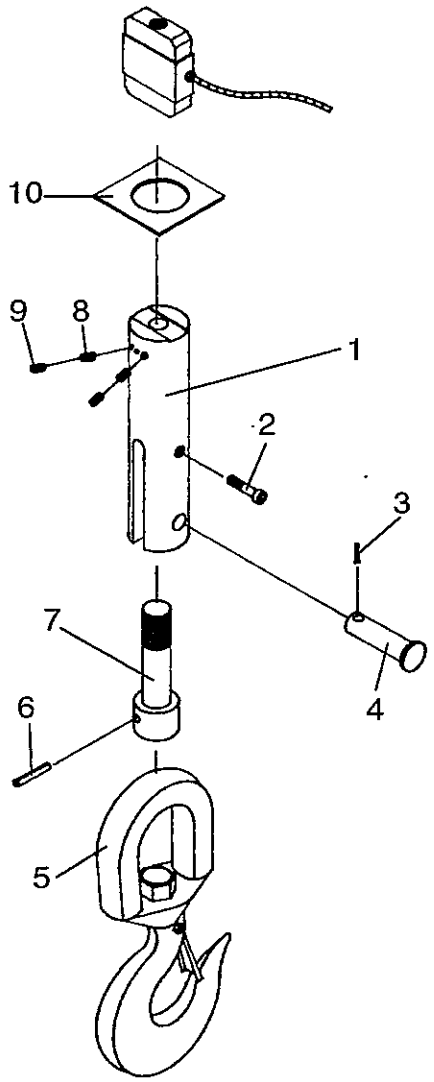
Reference	Part Number	Description
1		HIGH TENSILE BOLT
2	MC31442.002	SLEEVE FJ200kg
	MC31443.002	SLEEVE FJ500kg,1t
	MC31444.002	SLEEVE FJ2t
	MC31445.002	SLEEVE FJ5t
3	MC31477.115	LIFTING EYE #7 FJ200,500kg,1t
	MC31478.115	LIFTING EYE #7 FJ2t,5t
4		LOCK SCREW
5		GRUB SCREW
6	MC31451.002	SLEEVE GUIDE FJ200kg
	MC31452.002	SLEEVE GUIDE FJ500kg,1t
	MC31453.002	SLEEVE GUIDE FJ2t
	MC31454.002	SLEEVE GUIDE FJ5t
7	MC31426.014	REAR HOUSING FJ200kg
	MC31427.014	REAR HOUSING FJ500kg,1t
	MC31428.014	REAR HOUSING 2t
8	MC31484.002	LOADCELL GUIDE FJ200kg
	MC31485.002	LOADCELL GUIDE FJ500kg,1t
	MC31486.002	LOADCELL GUIDE FJ2t
	MC31487.002	LOADCELL GUIDE FJ5t
9		SCREW
10		LOADCELL LC1205-500K FJ200kg
		LOADCELL LC1205-T001 FJ500kg
		LOADCELL LC1205-T002 FJ1t
		LOADCELL LC1205-T005 FJ2t
		LOADCELL PTS 10t FJ5t
11	MC31574.001	TAB WASHER 58MM OD 33.8MM HOLE T005/T010
	MC31571.001	TAB WASHER 32MM OD 12.2MM HOLE T002/T01/K500/K200

Hook to Loadcell Assembly - T005/T010



Reference	Part Number	Description
1	MC31471.002	CLEVICE 212 MM LONG
2	MC31462.002	SHAFT 40 MM DIAMETER
3	MC31502.002	SHAFT STOPPER
4	FXM040002	M4 X 35MM SPLIT PIN
5	MC31495.015	SWIVEL HOOK 10 TONNE SWL
6	FXM060003	M8 X 60MM SELLOK PIN
7	FSI101040002	1,1/4 X 110 X 12UNF SKT HD SCREW - HT
8	FSM080006	M8 X 10 SKT HD GRUB SCREW - CONE 1.25P
9	FSM080007	M8 X 10 SKT HD GRUB SCREW - CUP 1.25P
10	MC31523.020	COVER A

Hook to Loadcell Assembly - T002/T001/K500/K200



Reference	Part Number	Description
1	MC31468.002	CLEVICE 222MM LONG
2	FSM080008	M8 X 60 SKT HD CAP SCREW
3	FXM040002	M4 X 35MM SPLIT PIN
4	MC31460.002	SHAFT 20MM DIAMETER
5	MC31483.015	SWIVEL HOOK 3 TONNE SWL
6	FXM050001	M5 X 30MM SELLOK PIN
7	FSM120009	M12 X 120 SKT HD CAP SCREW
8	FSM080006	M8 X 10 SKT HD GRUP SCREW - CONE 1.25P
9	FSM080007	M8 X 10 SKT HD GRUB SCREW - CUP 1.25P
10	MC31520.020	COVER B

A&D Company, Limited