

APPLICATION NOTES

SCALE PRINTER

AD-8115A/B

**A & D COMPANY, LTD.
A & D ENGINEERING, INC.**

AD-8115A/B Application Notes

(I) COMPLIANCE WITH FCC RULES

Please note that this equipment generates, uses and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the instruction manual you are warned that it may cause interference to radio communications. This unit has been tested and has been found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules. These rules are designed to provide reasonable protection against interference when equipment is operated in a commercial environment. However if this unit is operated in a residential area it is likely to cause interference and under these circumstances the user will be required to take whatever measures are necessary to eliminate the interference, at his own expense.

(II) WARRANTY

A & D Engineering, Inc. (hereinafter called the "COMPANY") warrants that articles, materials and work furnished by them will conform to specifications, drawings and to other data cited, further stipulating that such material and workmanship shall be free from defect. The COMPANY will repair or replace at its discretion, free of charge, any equipment covered by this warranty which is returned within one year of initial delivery and which upon examination proves to be defective in nature or workmanship.

This warranty does not apply to any COMPANY product that has been: -

- a) Repaired or modified by anyone other than someone authorized by the COMPANY if in their judgment such repair or modification has detrimentally affected the performance or reliability of the product.
- b) Improperly installed or not adjusted in accordance with instructions provided by the COMPANY.
- c) Mishandled, abused or in the judgment of the COMPANY has been exposed to an environment for which the product was not designed.

All products returned for warranty claim should be sent freight prepaid to the San Jose facility with a brief description of the problem. The COMPANY will notify the customer about the results of the factory inspection. If warranty repair is confirmed the unit will be repaired or replaced (at the COMPANY's discretion) at no extra cost to the customer and it will then be returned to him freight prepaid.

***N. B. FCC RULES & WARRANTY ONLY APPLY TO THE U. S. A.
THIS PAGE SHOULD BE DISREGARDED IN ANY OTHER COUNTRY AND
PLEASE REFER TO LOCAL CONSUMER PROTECTION LEGISLATION
CONCERNING WARRANTY RIGHTS.***

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A. INTRODUCTION

AD-8115A & B SCALE PRINTERS are technologically advanced products designed to be used with AD-4316 & AD-4321 weighing indicators.

Please note that before these printers can be interfaced to the above instruments, A & D's optional RS-232C interface must be installed in the weighing indicator. The printers are supplied with an appropriate cable and connector for connection to A & D's RS-232C I/O port.

AD-8115A is just a printer with no apparent memory and AD-8115B is a printer with a limited memory (and a totalizing facility) which has an "8-Memory Function" capability; which means that there are 8 memory sections assigned for weigh-in data. If an Option-02 Keyboard & Display is added to AD-8115A then the system will have a "Tare by Identification" (TBI) capability for up to 99 TBIs and such a system would be necessary in large truck scale/weighbridge and floor scale operations. Option-01 offers a BCD output which can be used with a scoreboard, plus an RS-232C output which may be used to send data to a computer.

N. B. Adding Op-02 to AD-8115B will disable the "8-Memory Function" capability.

AD-8115A/B FEATURES

1. Rugged design for Industrial Environments.
2. Clear printing from a dependable impact dot-matrix printer.
3. Compatible with RS-232C interfacing standards.
4. Alphanumerical print-out in normal and enlarged width format.
5. NiCd back-up battery will protect the calendar & clock for about 14 days in the event of an interruption, or failure, in the AC power supply.
6. Reliable computerised electronics based around the well proven Z80 C. P. U.

B. SPECIFICATIONS

PRINTER TYPE: Serial impact dot-matrix

FONT: 5 x 7 dots normal, 10 x 7 dots in enlarged mode.

CHARACTER SIZE: 1.7 (W) x 2.9mm (H) normal and 3.4 (W) x 2.9mm (H) enlarged.
0.067" x 0.114" normal and 0.134" x 0.114" enlarged.

CHARACTERS PER LINE: 26 normal, 13 enlarged----2.1mm between characters
and 4.23mm between lines. (0.083" and 0.1665")

SPEED: Approx. 2.4 lines per second.

PAPER SIZE: 70→210mm/2.76→8.27" (W), 90→297mm/3.54→11.69" (L), 0.09→0.45mm/0.0035→0.0177" thick.
Normal paper, 4 copy sheets max. at a time.

CLOCK: Minutes, Hours, Day, Month, Year. (2 digits for each, no leap year, accuracy= $\pm 5 \times 10^{-4}$)

DATA MEMORY SIZE: AD-8115A/B=2K bytes and with Op-02=6K bytes total (RAM).

OPERATING TEMPERATURE RANGE: -5→+40°C (23→104°F) (Relative Humidity 80% max.)

STORAGE TEMPERATURE RANGE: -10→+60°C (14→140°F)

DIMENSIONS: 400 (W) x 200 (D) x 150 (H) mm / 15.7" x 7.9" x 5.9"

POWER REQUIREMENTS: 100/117/220/240V AC, 50/60Hz, 60W

INTERFACE MODE: RS-232C with A & D standards

2. Rotary Dip-switch N° SW2 (HEXADECIMAL)

This dip-switch only functions in time adjust mode. SW1 Seg.7 & 8 on.

1. Indicate which digit you wish to adjust with reference to the table on the previous page (SW1 settings).
2. Select the correct value for that digit via the hexadecimal dip-switch SW2.
3. Insert some test paper into the printer and press the "PRINT" switch.
4. Check the print out to see that you have selected the correct value.
5. Pressing "PRINT" will have stored the value in memory and if it is correct you may proceed to indicate (via SW1) the next digit to be changed (by SW2).
6. Continue with the steps outlined above until the Calendar is completely set.

- * NOTE: For the purpose of programming the Clock is a 24 hour type, however the print out is in a 12 hour AM/PM format.
- * Months are indicated by just one digit, (Segment N° 1 & 2 of SW1 ON), so January to September = Months 1→9 and Oct. =A, Nov. =B & Dec. =C on SW2.

AD-8115A/B

G.WEIGHT	965.3Kg
SEQ.#	5
08:07AM 01/06/86	
N.WEIGHT	280.1Kg
SEQ.#	6
08:07AM 01/06/86	

AD-8115B

WEIGH-IN	1495Kg
MEM.#	3
01:57PM 01/06/86	
GROSS	3013Kg
TARE	1495Kg
NET	1518Kg
SEQ.#	3
02:51PM	
01/06/86	

AD-8115B

WEIGH-IN	910Kg
MEM.#	4
02:54PM 01/06/86	
GROSS	2572Kg
TARE	910Kg
NET	1662Kg
SEQ.#	4
03:51PM 01/06/86	

AD-8115B

TOTAL			
#	6	NET	4128Kg
#	1	WEIGHT	3979Kg

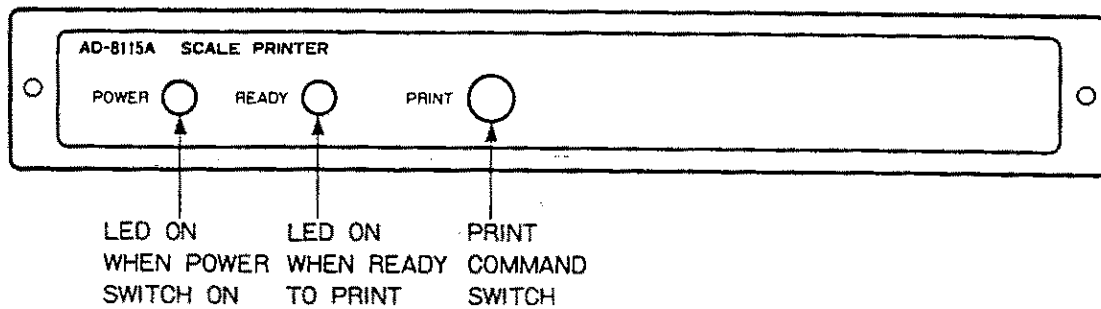
AD-8115A/B

DATE DATA	=	01/06/86
TIME DATA	=	08:04AM

F. OPERATION

1. AD-8115A

FRONT PANEL



WEIGHT PRINT.

Feed the ticket or paper into the printer paper input slot. If the paper is registered by both optical sensors and the weight data from the indicator is stable, the "READY" LED will come on. You may now press the "PRINT" switch.

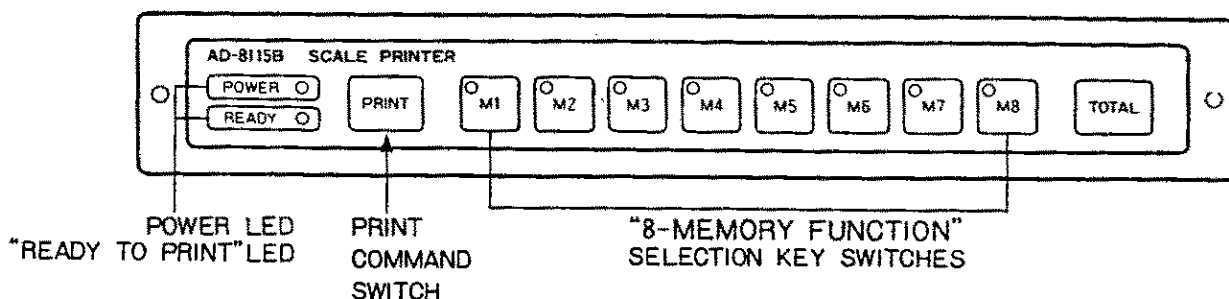
N. B. Paper with tractor feed holes down each margin may not intercept the optical paper sensing system. If you experience this problem, remove the right hand margin or fold it underneath before insertion.

The sequence number "SEQ. #" is incremented by 1 for each weighing event up to a maximum of 9999 events, after which "OVER" will be printed.

When the "READY" lamp is off the "PRINT" switch will act as a paper feed switch.

2. AD-8115B

FRONT PANEL



KEY-SWITCHES M1 TO M8 HAVE L. E. D. ANNUNCIATORS TO INDICATE THE STATUS OF THE CORRESPONDING SEGMENT OR SECTION OF MEMORY.

An LED on indicates that that segment of memory contains weigh-in data.

An LED off indicates that that segment of memory does not contain weigh-in data.

A flashing LED indicates that that segment of memory is in the process of being recalled or has just been assigned to a new weighing cycle.

E. DIP-SWITCHES

N.B. ALL SW1 DIP-SWITCH SEGMENTS ARE INITIALLY SET OFF.

1. 8 Segment Dip-switch N° SW 1

SEGMENT N°	FUNCTION	OFF	ON	REMARKS
1	TARE MEMORY MODE	NOT DELETED	AUTO DELETED	ONLY APPLIES TO AD-8115B
2	ENLARGED CHARACTER MODE	NOT VALID	VALID	USED TO HIGHLIGHT NET WEIGHT PRINT
3	DATE PRINT	VALID	NOT VALID	CAN DELETE DATE PRINT-OUT
4	SEQUENCE N°	VALID	NOT VALID	SEQ.# DELETE
5	PRINT DIRECTION	NORMAL	REVERSED	↑ ↓
6	CALENDAR STYLE	DAY/MONTH/YEAR	MONTH/DAY/YEAR	EUROPEAN OR USA STYLE
7 8	TIME ADJUSTMENT	NORMALLY OFF	TIME ADJUSTMENT	7 & 8 ONLY ON FOR ADJUSTMENT

* **SEGMENT N° 8 IS USED TO INITIALIZE THE MEMORY. TO CLEAR THE MEMORY: SWITCH OFF PRINTER, SWITCH ON N° 8, THEN SWITCH THE PRINTER ON AGAIN AND FINALLY SWITCH OFF N° 8. THE MEMORY MUST ALWAYS BE CLEARED WHEN THE PRINTER HAS BEEN DISCONNECTED FROM AC ELECTRICITY FOR MORE THAN 14 DAYS (i.e. when the NiCd battery has discharged).**

TIME ADJUSTMENT MODE 7 & 8 ON

IF SEGMENTS 7 & 8 ARE ON, THE FUNCTIONS OF SEGMENTS 1 TO 4 CHANGE AS FOLLOWS:-

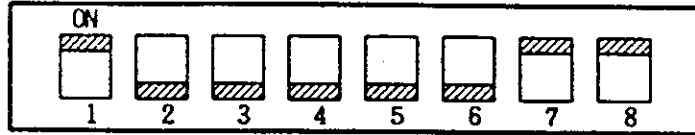
The functions of segments 5 & 6 remain the same but for segments 1 to 4, instead of setting the functions listed above, they may be used to indicate which digit in a year, month, day, hour and minute calendar display should be changed via the SW2 rotary dip-switch. Each change made must be stored or registered by pressing the print-switch before proceeding to the next digit to be changed. If the entire calendar needs to be set from scratch it is suggested that you start with the first digit of the year and end with the second digit of the minutes, as shown on the next page.

In the date 86/06/01, eight is the first digit of the year, six is the second digit, zero-six is the month, zero is the first digit of the day and one is the second digit of the day. The clock is set in the same way but a 24 hour clock programming format is converted automatically to a 12 hour AM/PM print out.

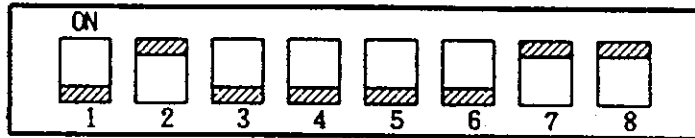
SW 1 CALENDAR POINTER N° SETTINGS



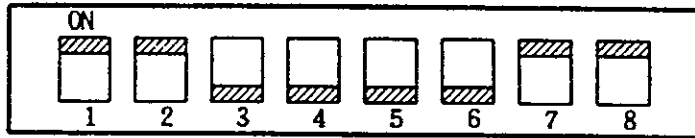
YEAR 1st DIGIT
NUMBER 1



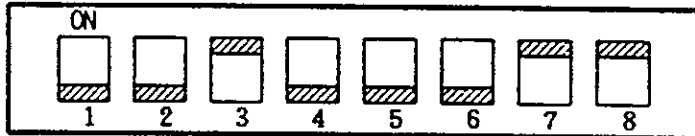
YEAR 2nd DIGIT
NUMBER 2



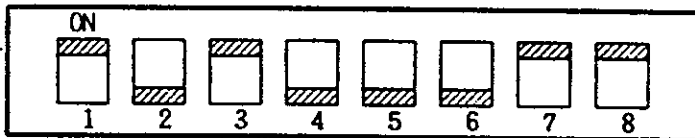
MONTH
NUMBER 3



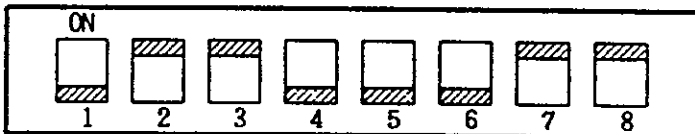
DAY 1st DIGIT
NUMBER 4



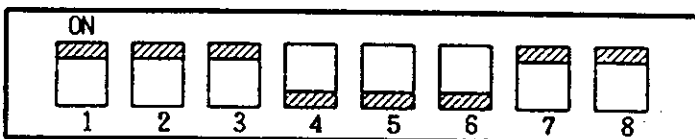
DAY 2nd DIGIT
NUMBER 5



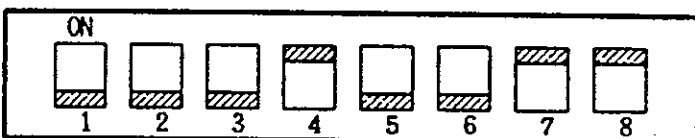
HOOR 1st DIGIT
NUMBER 6



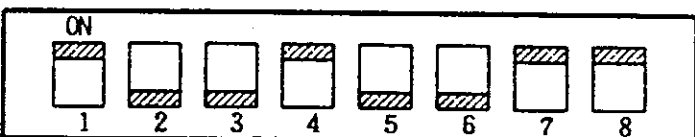
HOOR 2nd DIGIT
NUMBER 7



MINUTE 1st DIGIT
NUMBER 8



MINUTE 2nd DIGIT
NUMBER 9

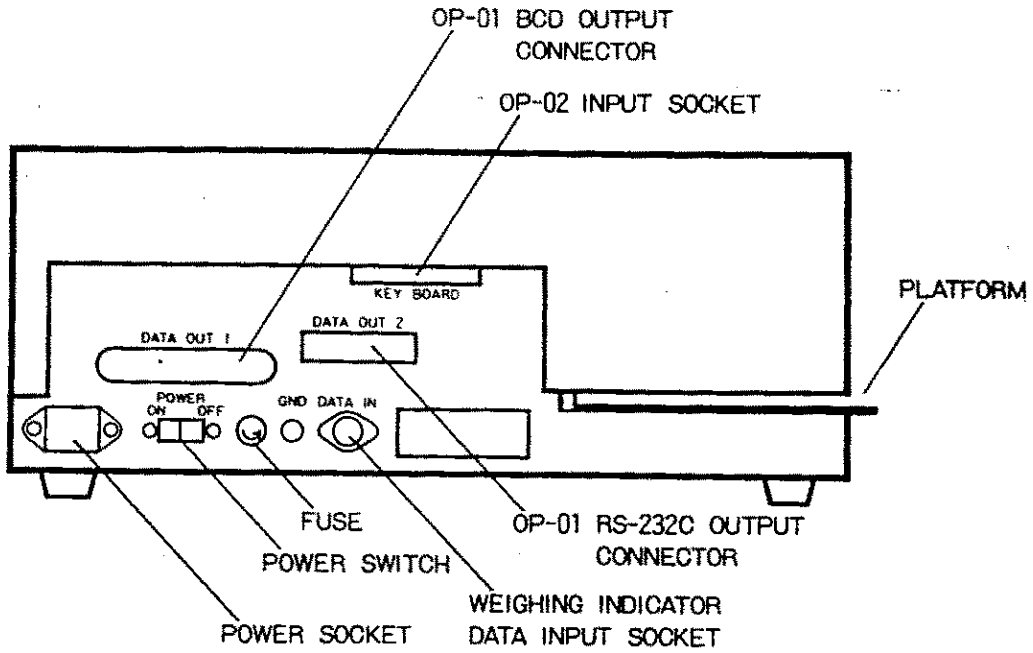


C. INSTALLATION

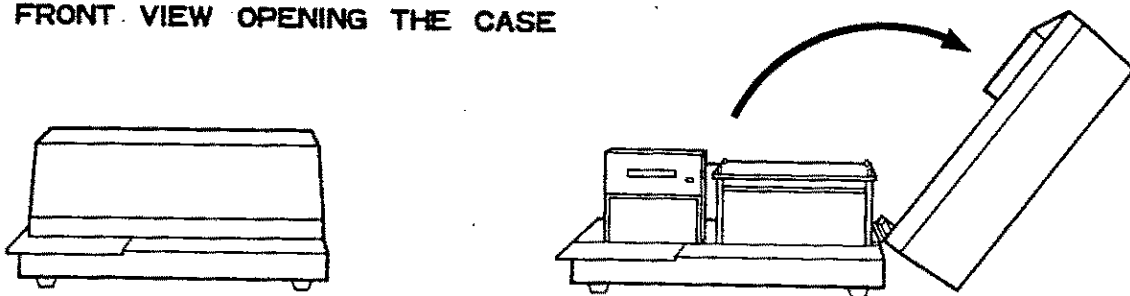
1. Please check that the voltage input on the transformer selection plug and socket is set correctly for your AC electricity supply. The plug and socket is located underneath the printer so you will have to turn the printer on to its side. The printer will accept 100, 117, 220 or 240V AC.
2. Install the printer ink ribbon cassette after unclipping the hinged printer cover. Take up any slack in the ribbon by rotating the tension knob anticlockwise.
3. Program the printer via dip-switch settings, the method is explained later.
4. Connect Op-02 Keyboard (if available) via its cable and connector. Please never connect or disconnect any lead with the printer switched on!
5. Program the AD-4316 & 4321 weighing indicator's Op-04 RS-232C serial output to transmit in STREAM Mode at 2400baud only (AD-4316=Dip-switch 1 & 2-ON and AD-4321=1-OFF, 2 & 3-ON, 6-OFF).
Please note that the weighing indicator must ALWAYS be in GROSS MODE and NEVER in Net Mode unless 8115 is only being used as a weight printer, in which case the weight will be printed as N. or G. WEIGHT.
6. Take the indicator connection cable and connect the RS-232C connector to the weighing indicator and plug the 7 pin DIN connector into the DATA IN socket on the rear panel of the printer. Please take care that this cable is never connected the wrong way around (i. e. Printer RS-232C output to Indicator's Current Loop)!!
7. If Op-01 is installed a scoreboard (AD-8915A) may be attached to the printer via the parallel BCD output connector on the rear panel. Likewise a computer can accept serial data transmission from the RS-232C output connector.
8. Turn on by pressing the power switch on the rear panel of the printer. If there is no problem the "POWER" LED (light-emitting diode pilot lamp) will come on. If it does not come on then please check the fuse, that power is reaching the printer, the voltage input selector etc.
9. Insert some test paper or a ticket by gently sliding it into the paper input slot. There are two optical sensors which will sense the right hand margin of the paper so make sure that the right hand margin is in contact with the paper guide. If the weight data from the indicator is stable the "READY" LED will come on. Press "PRINT" to test the printer. If it is not possible to insert the paper the printer roller may be down----if it is press the "PRINT" switch while feeding the paper into the printer, this will permit the paper to slide under the roller.
10. POWER OFF. First turn off all external devices such as the weighing indicator. Next turn off the printer via the rear panel rocker switch. Please never switch off when the printer head is moving! If the printer is disconnected from the AC electricity supply the memory data will be protected by the internal trickle charged nickel-cadmium battery for up to 14 days.

D. ILLUSTRATIONS

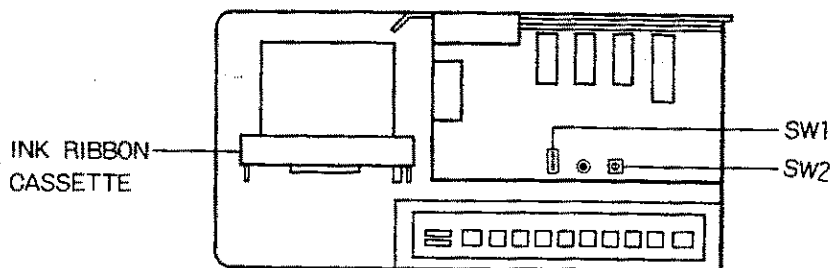
REAR VIEW



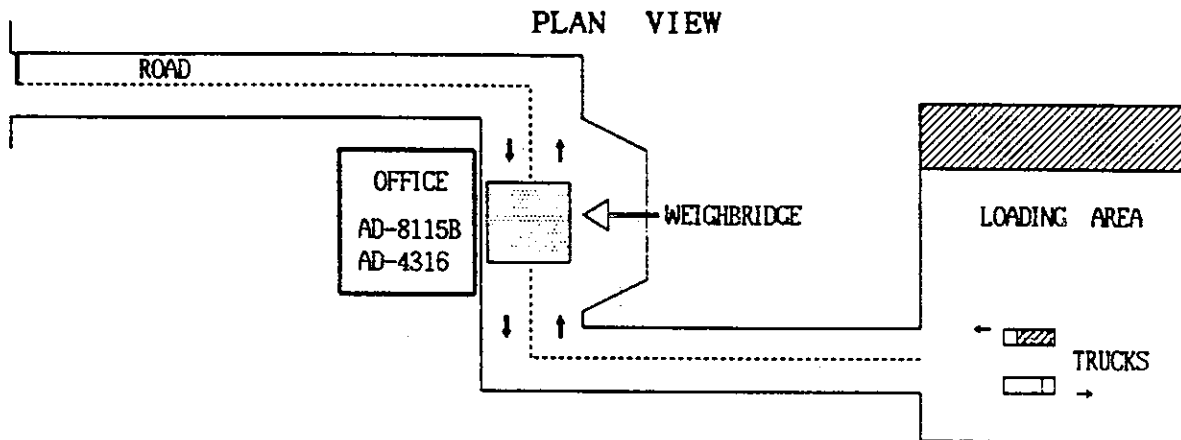
FRONT VIEW OPENING THE CASE



VIEW FROM ABOVE WITH THE CASE OPEN



WEIGHBRIDGE PRINTING OPERATION EXAMPLE WITH AD-8115B



1. **TRUCK ARRIVES EMPTY**
Press one of the memory segment key switches M1 to M8 which presently contains no memory data (LED off). The LED will start to flash to indicate that this segment has just been assigned. Press the "PRINT" switch and the printer will print a "WEIGH-IN" ticket/slip which will include the weight of the empty truck, the memory segment number "MEM. #" and the time/date.
2. **TRUCK LOADS & RETURNS FULL**
Read the WEIGH-IN slip to obtain the memory number. Press the key corresponding to the memory number and the LED will flash to show that that memory is being recalled. Press the "PRINT" switch and the printer will print (SW 1 Seg. 2 on=enlarged) GROSS, TARE & NET Weights. If SW 1 Seg. 1 is ON, the memory data will be auto-deleted at this point and the LED will switch off. The memory data may be deleted manually by pressing the relevant memory key while simultaneously pressing the "PRINT" switch.
N. B. If, when a memory LED is flashing, any key other than "PRINT" is pressed, the NET weight print-out will be cancelled and the LED will stop flashing.
3. **WEIGHT PRINT ONLY**
If the "PRINT" key is pressed when none of the memory segments is in recall (LED flashing), the printer will only print weight data.
4. **TOTAL PRINT**
To obtain a total print-out of all the Weight and Net Weight readings, press the "TOTAL" key. After printing the data the 'TOTAL' memory segment (but not the TARE segments) will be cleared.
5. **PAPER FEED**
When the "READY" lamp is off the "PRINT" switch will act as a paper feed switch.

G. OPTIONS

OPTION-01 BCD/RS-232C

The parallel BCD (binary-coded-decimal) output from this option may be used to send data to a scoreboard. The serial RS-232C output may be used to send data to a computer. The BCD output re-transmits the data sent by the weighing indicator and the RS-232C output transmits (by ASCII code) data which is identical to the data which is printed.

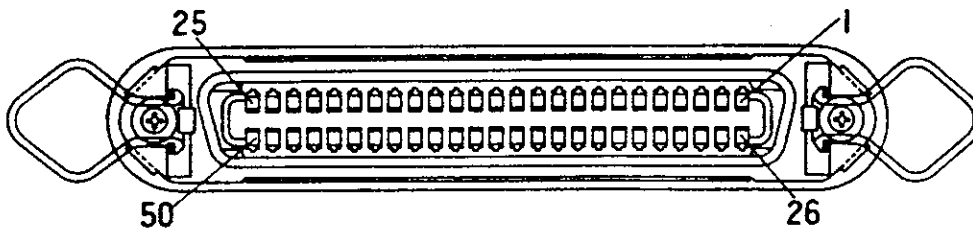
BCD OUTPUT TABLE

Pin No.	Signal	Pin No.	Signal
1	LOGIC COMMON	26	NOT CONNECTED
2	1×10^0	27	↑ NOT CONNECTED Polarity (+ Hi) NOT CONNECTED NOT CONNECTED NOT CONNECTED NOT CONNECTED Internal Use NOT CONNECTED NOT CONNECTED NOT CONNECTED
3	2×10^0	28	
4	4×10^0	29	
5	8×10^0	30	
6	1×10^1	31	
7	2×10^1	32	
8	4×10^1	33	
9	8×10^1	34	
10	1×10^2	35	
11	2×10^2	36	
12	4×10^2	37	
13	8×10^2	38	
14	1×10^3	39	
15	2×10^3	40	
16	4×10^3	41	
17	8×10^3	42	
18	1×10^4	43	
19	2×10^4	44	
20	4×10^4	45	
21	8×10^4	46	
22	1×10^5	47	
23	2×10^5	48	
24	4×10^5	49	
25	8×10^5	50	

OUTPUT CONNECTOR: AMPHENOL 57-40500

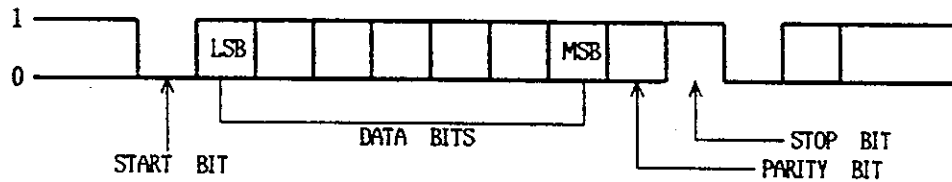
MATING CONNECTOR: AMPHENOL 57-30500

OP-01



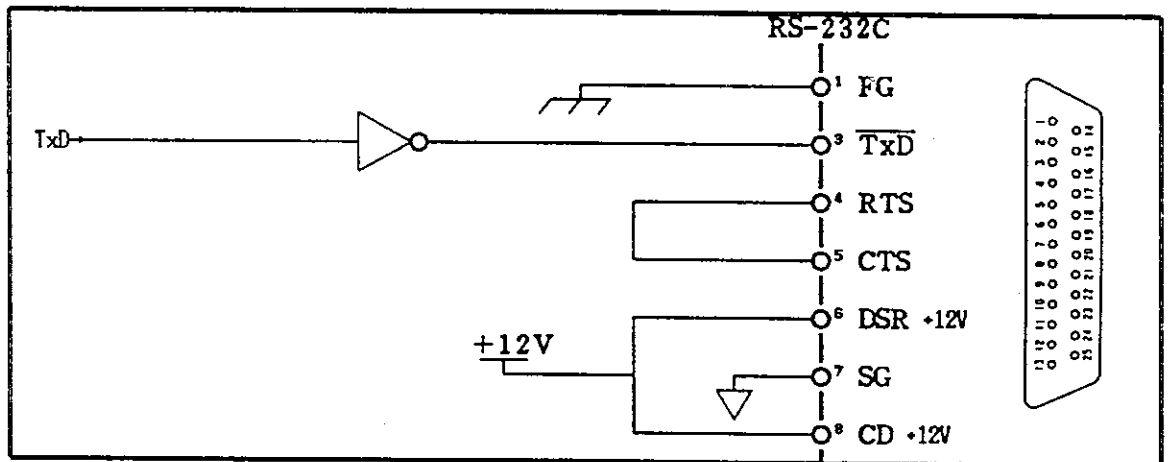
RS-232C OUTPUT SPECIFICATIONS

Type-----EIA-RS-232C
 SEND DATA ONLY
 Format-----Baud rate : 2400
 Data bit : 7
 Parity bit : 1 (EVEN)
 Stop bit : 1
 Code : ASCII



RS-232C 1 = -5V → -15V
 0 = +5V → +15V

CIRCUIT DIAGRAM



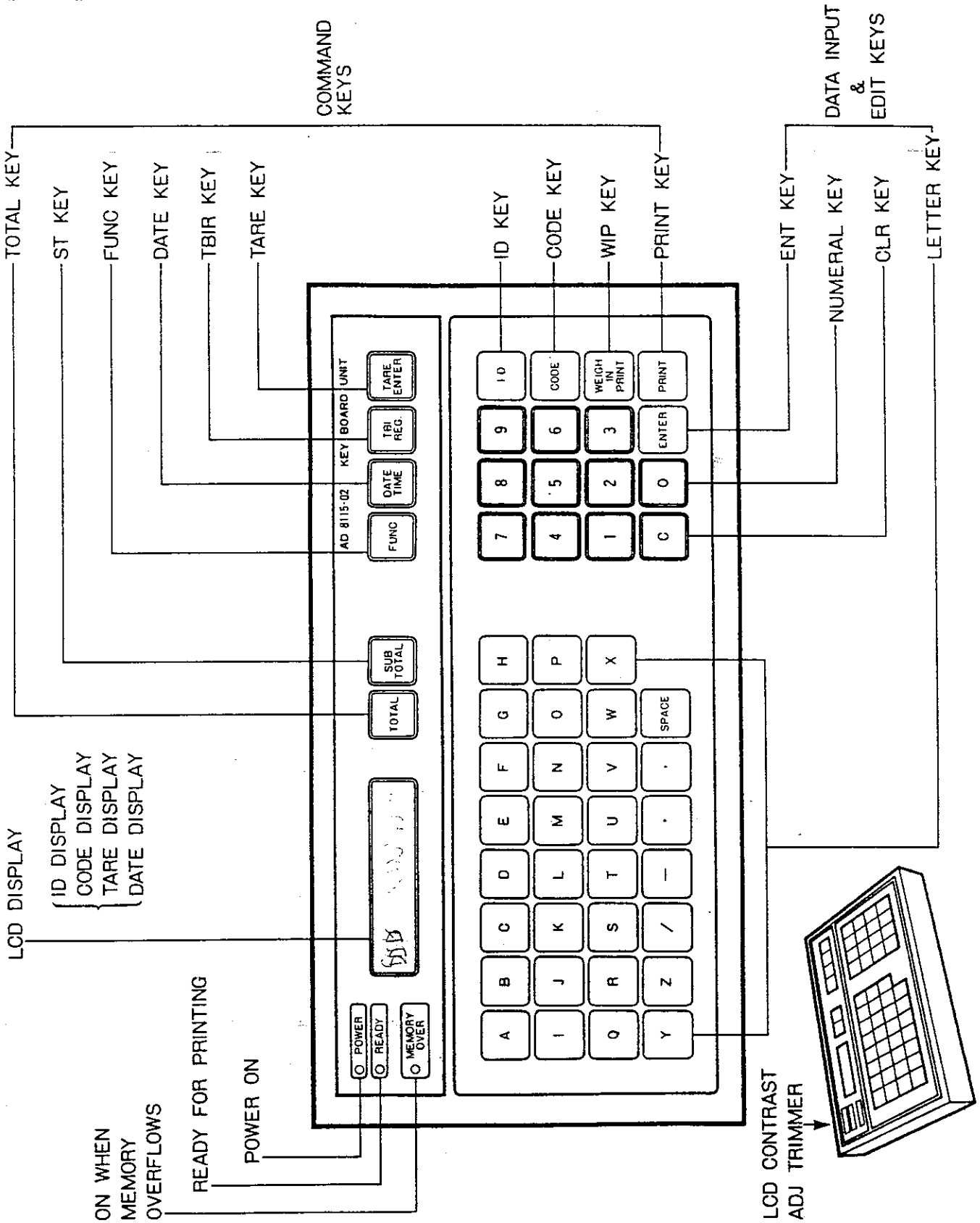
RS-232C OUTPUT CONNECTOR PIN CONNECTIONS

Output data is the same as the printed data.
 All pins other than 1, 3, 4, 5, 6, 7 & 8 are not connected.

PIN NUMBER	FUNCTION
1	Frame Ground (FG)
3	Transmit Data (Tx̄D)
4	Request to Send (RTS)
5	Clear to Send (CTS)
6	Data Set Ready (DSR) +12V
7	Signal Ground (SG)
8	Carrier Detect (CD) +12V

OPTION-02 KEYBOARD

PANEL DESCRIPTION



LIQUID-CRYSTAL DISPLAY (LCD)

The LCD has four types of display mode:- ID data display, Code data display, Tare Weight data display and Date/Time data display.

1. ID (identification) display example.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
I	D	1	2	[	R	M	]	A	C	M	E		C	0	.

SHORT ID NUMBER † RECALL MEMORY † COMPANY NAME (FOR EXAMPLE) † 8 chs. max.

2. CODE display example.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
C	0	D	E					A	P	P	L	E	S		

Indicates CODE mode † MATERIAL LOADED (FOR EXAMPLE) † 8 chs. max.

3. TARE display example.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
t	a	r	e	[	k	g	]						1	0	0

† tare=Auto delete mode & TARE=Manual delete mode. TARE WEIGHT 5 digits max.†

4. DATE/TIME display example.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	:	5	9	P	M		0	1	/	0	6	/	8	6

HOUR : MINUTE AM/PM DAY (MONTH) / MONTH (DAY) / YEAR

EXAMPLE PRINT-OUTS.

```
WEIGH-IN      876Kg
ID[12] ACME CO.
06:31AM 01/06/86

GROSS        2952Kg
TARE         876Kg
NET          2076Kg
SEQ.#        2
ID           ACME CO.
CODE         APPLES
07:45AM 01/06/86
```

```
WEIGH-IN      1611Kg
ID[12] ACME CO.
10:59AM
01/06/86

GROSS        2256Kg
TARE         1611Kg
NET          645Kg
SEQ.#        1
ID           ACME CO.
CODE         APPLES
11:30AM
01/06/86
```

OPERATION OF THE KEYBOARD.

a) ID (IDENTIFICATION)

1. Press the "ID" key-switch and first type in the name (or number) used to identify the weighing container or truck, then press "ENTER". Next set the short two digit identification number "S. ID" (01-99) which will be used to recall the longer (8 character space max.) name, then press "ENTER". In this mode the cursor flashes over the space to the right of the character just entered and errors can be deleted by pressing "C" which acts as a back space rub-out key. You are not obliged to use the "S. ID" function and could press "ENTER" twice after the first ID name entry in order to be able to advance to the next step.

2. Typically you would now press the "WEIGH IN" key and issue a weigh-in ticket which would indicate the present weight of the container/truck, the short ID number, the ID name and the DATE/TIME. The weight unit (kg, lb or t) displayed & printed is automatically governed by the weighing indicator's output.

3. When the truck or container returns to the weighbridge you would look at the short ID number (or name if no number), press "ID" - enter the number - and press "ID" again. The display will then indicate the S. ID number, [RM] recall memory and the ID name, (if the printer cannot find the ID number "S. ID not find" will be displayed for a short period of time).

You should next press "CODE" and type in the code name or number for the contents of the container (for example), then press "ENTER".

If you next insert the weigh-in ticket/slip and press "PRINT" when the READY LED is on, the printer will paper feed past the weigh-in data and then print: GROSS, TARE, NET, SEQ. #, ID NAME, CODE NAME/N° and DATE/TIME data.

4. If you press another command key while you are entering in ID mode the printer will cancel ID mode in favour of the new command key.

5. If ID entries exceed 99, an alarm buzzer will sound to indicate ID overflow.

6. If you press "C" clear when the printer is in ID display mode (but not in ID enter mode) the ID DATA, CODE DATA and TARE DATA will all be cleared from the memory.

b) CODE NAME/NUMBER

1. Press the "CODE" key and the display will indicate code input mode by showing "CODE" followed by "Code Set" when you start to enter the code. "C" acts as a back space rub-out key.
2. There are a maximum of 8 character spaces available for the code which can be written in letters, numbers or a mixture of both. The code will typically be used to identify the material which is being weighed.
3. After entering the code press "ENTER" to register the data.
4. If CODE entries exceed 100, an alarm buzzer will sound to indicate overflow.
5. In order to delete any CODE data, place the printer in ID mode and press "C" to clear the memory.

c) TARE ENTER

1. This key is used to verify tare data and to enter tare values.
2. Press "TARE ENTER" and the display will show "tare [Kg]" and any tare value already entered. The unit (Kg, Lb or t) is governed by the weighing indicator's output.
3. The display will change to "Tare Set" when you begin to enter the 5 digit (maximum) tare value. "C" acts as a back space rub-out key.
4. Any decimal point entered must coincide with the position of the decimal point shown on the weighing indicator.
5. After entering the tare value press "ENTER".
6. If any other command key is pressed when you are in tare input mode the printer will exit tare input mode in favour of the new command key.
7. If tare data has been entered via the keyboard rather than via the weighing indicator, the printer will print "KTARE".
8. A tare value may be deleted by pressing "TARE ENTER" followed by "C".

d) TBI REG. (Tare by ID registration)

1. Press the "TARE ENTER" key and if a tare value is displayed that ID contains a tare value.
2. Press "TBI REG." and the display will change from "tare [Kg]" to "TARE [Kg]". This data will not now be automatically deleted.
3. If the ID does not contain a tare value and you press "TBI REG." an alarm buzzer will sound and the command will not be executed.

e) DATE/TIME INPUT MODE

1. Press the "DATE/TIME" key and the display will indicate the time and date. Direct access to this mode may be denied by pressing "FUNCTION"- "P"- "ENTER" after setting the date, which means that "FUNCTION"- "P" (password)- "ENTER" will have to be pressed again in order to gain access to the DATE/TIME Mode. For security considerations you may wish to delete certain sections of this manual before it is issued for general training.
2. The cursor in this mode is of the 'flashing-over-the-character' variety and can be moved by the "C" (back-space-no-deletion) and "SPACE" keys. Characters are auto-deleted when fresh characters are placed 'on top of them'.
3. Month/day order (European or American style) depends upon the setting of the printer dip-switch SW 1 segment 6. Time is set via a 12 hour clock display with AM & PM (change A or P).
4. Input parameters are:- Hour=00→11AM/PM, Minute=00→59, Day=01→31, Month=01→12, Year=00→99. An alarm buzzer will sound for invalid data.
5. If any other command key is pressed when you are in DATE/TIME input mode, the printer will exit the mode in favour of the new command key.
6. AD-8115 will not register leap years automatically so February 29th must be set manually via the DATE/TIME input mode.

f) WEIGH-IN PRINT KEY

1. The "WEIGH-IN PRINT" key is used when a truck or container first weighs in before loading or unloading.
2. Before this key becomes operable, ID registration must take place so that an ID name and short ID number can be printed on the weigh-in slip.
3. If an ID memory already contains tare data from a previous weigh-in or from manual tare input, the "WEIGH-IN PRINT" key will not function.
4. AD-8115 will only print when the READY (to print) LED is on. If the LED is off the "WEIGH-IN PRINT" key will act as a paper feed key.

g) PRINT KEY

1. This key is used for initiating a simple weight print-out and for initiating a Gross, Tare & Net Weight print-out after a truck/container returns to the weighbridge full (or empty) after previously weighing-in. This key will also act as paper feed key if the READY (to print) LED is off.
2. If the MEMORY OVERflowed LED switches on when this key is pressed, either the number of code entries exceed 100 or the sequential number exceeds 9999.

h) TOTAL KEY

1. When this key is pressed AD-8115 will print the total for weight data the total for different Net Weights, listed in alphabetical order according to their code names. A print-out of
- | | | | |
|---|---|------|--------|
| | | CODE | APPLES |
| # | 4 | NET | 5075Kg |

would mean that 4 containers or trucks carried a net weight total of 5,075Kg of Apples over the weighbridge.

2. When the READY (to print) LED is off the "TOTAL" key will act as a paper feed key.
3. If the paper sensor detects "paper end" during a TOTAL print-out, printing will be automatically stopped without clearing the memory. Insert a longer piece of paper and start again by pressing "TOTAL" once more.
4. The "TOTAL" section of accumulated memory will be automatically cleared after a TOTAL print-out. No other segments/sections will be cleared.
5. The "SUB TOTAL" key is exactly the same as the "TOTAL" key except that the TOTAL segment of memory will not be cleared after a sub total print-out.

h) FUNC. (FUNCTION) KEY

1. This is a special command key used in conjunction with 7 letters from the A to Z keyboard (B, C, L, T, S, N, P).
2. A mistake in entering a Function command may be rectified via "C" clear.
3. After a Function command has been executed, the printer will revert to ID.
4. Functions are initiated by pressing "FUNC."-"FUNC. LETTER"-"ENTER".
e.g. Key Buzzer/Beeper OFF (but not alarm double beep) = "FUNC"-"B"-"ENTER" & repeat for ON again.
5. Function "T" may be required for TBI (Tare by ID) operations in order to place a weighbridge tare in memory without first obtaining a print-out.

FUNCTION LETTER	FUNCTION
B	BUZZER ON/OFF
C (NOT "C" CLEAR)	COMPLETE MEMORY CLEAR
L	PRINT ID LIST
T	WEIGH-IN WITHOUT PRINTING
S	CLEAR SEQ.# (RESET TO SEQ.# 1)
N	PRINT SHORT ID LIST
P	DATE/TIME PASSWORD

EXAMPLE PRINT-OUTS
TOTAL, ID LIST & S. ID LIST.

TOTAL			
	CODE	APPLES	
# 2	NET	1481.8K _r	
	CODE	BANANAS	
# 1	NET	879.5K _r	
	CODE	CHERRIES	
# 1	NET	1033.9K _r	
	CODE	DURIAN	
# 2	NET	1650.1K _r	
	CODE	GRAPES	
# 1	NET	990.6K _r	
	CODE	MELONS	
# 1	NET	1248.7K _r	
	CODE	ORANGES	
# 1	NET	1410.4K _r	
	CODE	PEARS	
# 2	NET	1765.4K _r	

```

ID LIST 07:51AM 01/06/86
ID      CODE      TARE[Kr]*
S.ID[ 0]
FRUIT          1000.0r
S.ID[12]
ACME CO. APPLES  1100.0r
S.ID[20]
BRISTOCK BANANA  1200.0
S.ID[16]
CALTRACK GRAPES  1300.0
S.ID[24]
FBI INC.  ORANGES 1400.0r
S.ID[18]
FRASER  CHERRIES  1500.0
S.ID[22]
KGB LTD. DURIAN   1600.0
S.ID[14]
M.AND S. MELONS  1700.0r
S.ID[26]
U-HAULIT PEARS   1800.0

S.ID LIST 07:52AM 01/06/86
ID      S.ID
      0
ACME CO.  12
BRISTOCK  20
CALTRACK  16
FBI INC.  24
FRASER    18
KGB LTD.  22
M.AND S.  14
U-HAULIT  26
    
```

N.B A small "r" after a tare weight number such as "ACME CO. APPLES 1100.0r" indicates that the tare weight value has been permanently stored in TBI.

SCALE PRINTER AD-8115A/B

APPLICATION NOTES FOR AD-8115 WITH KEYBOARD

QUARRYING OPERATIONS

1. In quarrying operations the empty weight of the rail wagon/container or truck may be known and such weight can be entered via keyboard tare entry (KTARE) or via Tare by ID registration when an "r" will be printed after the value to indicate "registration". In the case of trucks the tare weight changes with variables such as the volume of fuel carried in the truck. Trucks may therefore have their tare weight entered via a weighbridge weigh-in ticket or via weighing in without printing (Function T).

2. If the containers, wagons or trucks are individually numbered then such numbers can be entered as a short ID code (1~99) or as an ID name 0~99999999 (but only 99 different numbers/names). Trucks in quarrying operations can be identified for TBI by their vehicle number plates and, as the contents is known and unchanging, the number plate can be duplicated for use as a CODE number. A total list will thereby identify which truck carried how many tonnes, kilograms or pounds (avoir) of, for instance, gravel during the course of how many separate visits to the quarry.

EXAMPLE PRINT-OUTS SUB-TOTAL, ID LIST & S. ID LIST.

SUB TOTAL			
#	2	CODE	A640 EJM
		NET	10.555 t
		CODE	A750 RYY
#	2	NET	8.717 t
		CODE	B544 QCH
#	2	NET	8.487 t
		CODE	B632 HCB
#	1	NET	8.767 t
		CODE	C312 DBC
#	1	NET	6.387 t
		CODE	HJK 562Y
#	1	NET	8.772 t
		CODE	HKM 500X
#	2	NET	8.899 t
		CODE	LBJ 726Y
#	2	NET	18.941 t
		CODE	ROL 823X
#	3	NET	17.633 t

ID LIST 04:06PM 01/06/86			
ID	CODE	TARE	[t]*
S.ID[0]			
	HKM 500X	19.302r	
S.ID[40]			
A640 EJM	A640 EJM	20.125	
S.ID[50]			
A750 RYY	A750 RYY	17.432	
S.ID[44]			
B544 QCH	B544 QCH	16.852	
S.ID[32]			
B632 HCB	B632 HCB	17.955r	
S.ID[12]			
C312 DBC	C312 DBC	18.223r	
S.ID[62]			
HJK 562Y	HJK 562Y	15.697	
S.ID[26]			
LBJ 726Y	LBJ 726Y	17.986	
S.ID[23]			
ROL 823X	ROL 823X	19.012r	
S. ID LIST 04:06PM 01/06/86			
ID	S. ID		
	0		
A640 EJM	40		
A750 RYY	50		
B544 QCH	44		
B632 HCB	32		
C312 DBC	12		
HJK 562Y	62		
LBJ 726Y	26		
ROL 823X	23		

8115A/B APPENDIX --- CONNECTIONS

1. AD-8115A/B comes with a free cable for connecting the printer to A & D weighing indicators such as AD-4316 or AD-4321 which have been provided with RS-232C interfaces. One end of this cable is terminated with a 7 pin DIN plug for DATA IN on the printer and the other end is provided with a 25 pin RS-232C connector for the indicator DATA OUT socket.

Please do not plug the DIN connector into the Current Loop socket and the RS-232C connector into the OPTION-01 RS-232C output socket on the printer!!

2. OPTION-01 comes with a free BCD 57:30500 AMPHENOL mating connector. A & D peripherals like the AD-8915A scoreboard also come with a free BCD connector so the user need only find a high quality cable (which should be kept as short as possible) in order to link the two units.

3. OPTION-01 does not come with a free RS-232C connector because A & D peripherals, such as the AD-8116 statistics/compact printer, come with a free cable and connector for plugging directly into this interface.

4. OPTION-02 comes with an interface board to be installed in the printer and all the cables and connectors necessary to connect the Keyboard to the Printer.

OP-02 OPERATION CHECK LIST

DELETE STEPS YOU DO NOT NEED TO USE

1. PRESS "ID" - PRESS "ENTER". SET ID & S. ID. THEN PRESS "ENTER".

2. ISSUE A WEIGH-IN TICKET
OR
WEIGH-IN WITHOUT PRINTING (FUNCTION T)
OR
ENTER A KEYBOARD TARE VALUE VIA "TARE ENTER"
OR
ENTER A "TARE BY ID REGISTRATION" VALUE

3. FOR WEIGHING OUT PRESS "ID" - SET S. ID NUMBER - PRESS "ID"

4. PRESS "CODE" SET YOUR CODE AND PRESS "ENTER"

5. PRESS THE KEYBOARD "PRINT" KEY.

AD-8115A/B & OPTION-02

Version update

Future versions of AD-8115A/B will have the following features:

Negative weight data transmitted by a weighing indicator like AD-4316 or AD-4321 will be treated by the Printer as unstable data and the READY to print LED will thus never switch on.

In future, operators of AD-8115 with the optional keyboard will have the option to set the minimum division value of the printer to match the minimum division value set in the weighing indicator. This means that, if the minimum division is set correctly in the printer, it will not be possible to inadvertently set TARE data (through keyboard entry) showing a finer resolution than the weighing system can actually manage. The default setting of the printer after initialization will remain with the minimum division set as 1 so that the operator will be able to set high resolution keyboard TARE data until the printer has been manually informed of the correct min.div. setting of the indicator. Obviously if the minimum division setting of the indicator is 10D then the printer should also be 10D.

Segment numbers 1 and 7 & 8 of dip switch SW1 in the printer should be set to ON for setting the minimum division of the printer. In this mode when you press the FUNC (function) key on the keyboard followed by a number from 1 to 7, the printer's minimum division can be set to 1, 2, 5, 10, 20, 50 or 100.

AD-8115A/B with Option-02

FUNC	MIN DIV
1	1
2	2
3	5
4	10
5	20
6	50
7	100