

SERVICE MANUAL

B81315* Transparency Unit



EPSON®



SESC980004

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PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1) Personal injury and 2) damage to equipment.

DANGER Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

WARNING Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/ RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NONAPPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of B81315* Transparency Unit. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

Contents

This manual consists of six chapters and Appendix.

CHAPTER 1. PRODUCT DESCRIPTIONS

Provides a general overview and specifications of the product.

CHAPTER 2. OPERATING PRINCIPLES

Describes the theory of electrical and mechanical operations of the product.

CHAPTER 3. DISASSEMBLY AND ASSEMBLY

Provides the step-by-step procedures for disassembling and assembling the product.

CHAPTER 4. ADJUSTMENTS

Provides Epson-approved methods for adjustment.

CHAPTER 5. TROUBLESHOOTING

Describes the step-by-step procedures for the troubleshooting.

CHAPTER 6. MAINTENANCE

Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

APPENDIX Provides the following additional information for reference:

- Connector pin assignments
- Electric circuit boards components layout
- Exploded diagram
- Electrical circuit boards schematics

Symbols Used in This Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be aware of all symbols when they are used, and always read WARNING, CAUTION or NOTE messages.



Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.



Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.



May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.

Revision Status

Revision	Issued Date	Description
Rev. A	February 16,1999	First Release

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CHAPTER

1

PRODUCT DESCRIPTION

1.1 Feature

This product is a transparency unit for EPSON Color Image Scanner GT-9600. Installation of this unit enables GT-9600 to read both transparency document and reflective document, also positive and negative files up to maximum 8.5 x 11 size.

1.2 Specification

Since the basic component of this unit is same as that of B81306*, different specifications exclusively for GT-9600 are written here.

1.2.1 General Specification

- ☐ Sub-scanning method: Movement of the scanning head
- ☐ Light Source: Xenon Fluorescent Lamp
- ☐ Document: Transparency document/Both positive and negative film
- ☐ Power consumption: +24V Max.600mA
+ 5V Max. 100mA
- ☐ Physical dimensions: 324(W) x 540(D) x 92(H) mm
- ☐ Weight: Approx. 5 Kg
- ☐ Safety: UL1950
C-tick
CE-Marking

CHAPTER

2

OPERATING PRINCIPLES

2.1 Control Circuit

Since the mechanism of B81315* is same as that of B81306, only control circuit is explained here.

2.1.1 Circuit Operation Overview

The control circuit consists of the main control circuit board and the inverter circuit board. The main circuit board drives the carriage motor. The inverter drives the light source of Xenon gas cathode-ray tube only. This circuit is needed +5VDC (for logic) and +24VDC (for Inverter and carriage motor). These power are supplied by the scanner via connector CN1.

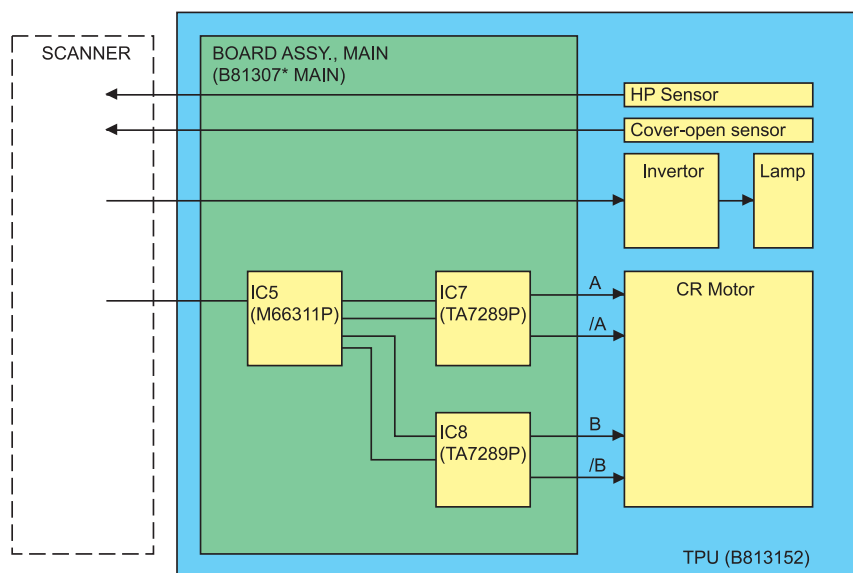


Figure 2-1. Circuit Board Diagram

CHAPTER

3

DISASSEMBLY AND ASSEMBLY

3.1 Disassembly and Assembly

Here explains the procedure of disassembly for the major component of the transparency unit. Basically, the basic component of this unit is same as that of B81306*, different procedures exclusively for GT-9600 are written here.

3.1.1 Carriage Assembly Removal

1. Remove "Housing, Lower". (Refer to the Service Manual of B81306*)
2. Remove one CBB screw(M4 x 10) securing "Cable, CR" and "Mounting Plate, Cable".
3. Remove "Cable, CR" attached to the frame cover of "Housing Assembly, Upper".
4. Remove 2 CBB screws(M4 x 12) securing "Mounting Plate, Shaft, Front/Rear" to "Housing Assembly, Upper".
5. Remove "Carriage Assembly" with "Mounting Plate, Shaft, Front/Rear".

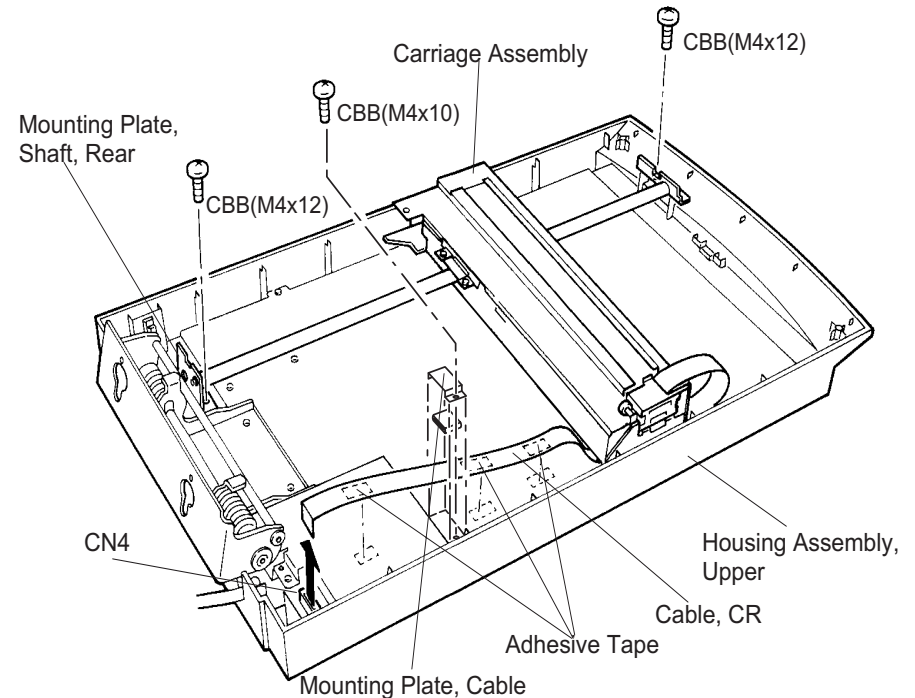


Figure 3-1. "Carriage Assembly" Removal

3.1.2 Board Assembly, Main Removal

1. Remove "Housing, Lower".
2. Remove "Carriage Assembly".
3. Remove one CBB screw(M4 x 12) securing "Mounting Plate" to "Housing Assembly, Upper", then remove "Mounting Plate Assembly".
4. Remove 7 CBB screws(M4 x 10) and one CBS screw(M3 x 8) securing "Frame, Cover" to "Housing Assembly, Upper", then remove "Frame, Cover".
5. Disconnect the connectors CN1, CN2 and CN3 on the "Board Assembly, Main".
6. Remove 2 CBB screws(M3 x 10) securing the "Board Assembly, Main" to "Housing Assembly, Upper", then remove "Board Assembly, Main".

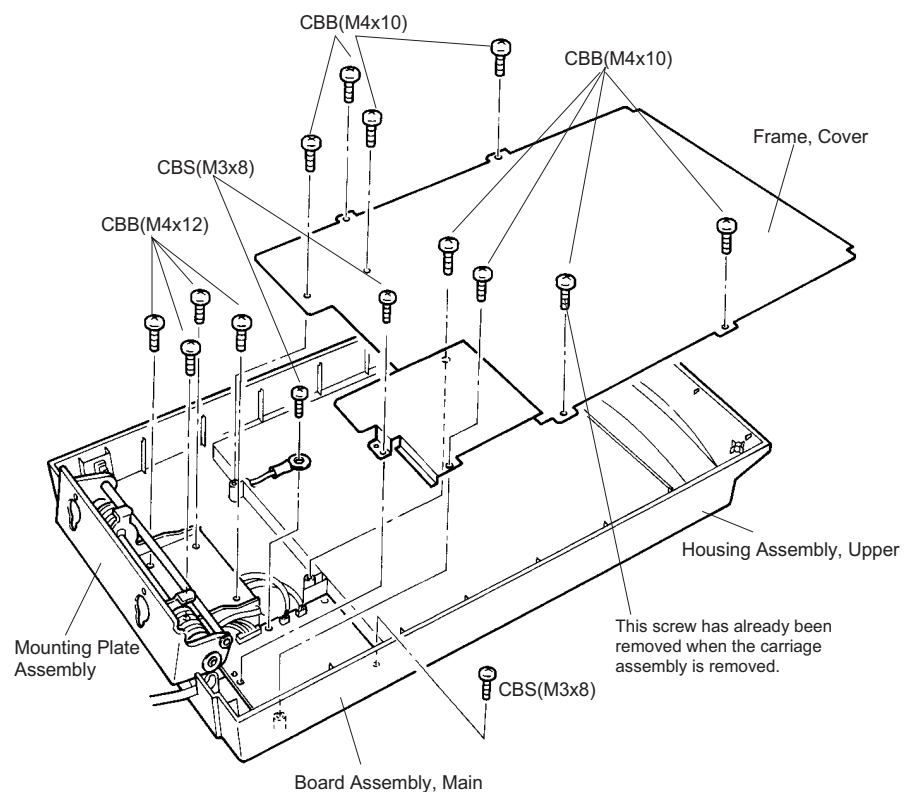


Figure 3-2. "Board Assembly, Main" Removal

CHAPTER

4

ADJUSTMENT

4.1 Adjustment

No adjustment required.



CHAPTER

5

TROUBLESHOOTING

5.1 Troubleshooting

When a trouble occurs, you can distinguish the defective unit by referring the symptoms of the defect that indicated in scanner indicator. The table below lists the symptom of certain defects, and you can easily identify what is the problem.

Table 5-1. Symptom and Problem in Scanner Indicator

Symptom	Problem	Cause
Option Error	Cover Open	<ul style="list-style-type: none"> Transparency Cover is open. Cover Open Sensor is defective.
	Carriage Error	<ul style="list-style-type: none"> Lamp Carriage mechanism is defective. Carriage Home Position Sensor is defective. Carriage Motor is defective.

Table 5-2. Scanner indicates no error but no image data

Cause	Checkpoint	Solution
CN1 is disconnected	Check the connection between CN1 and Scanner.	Connect them correctly.
Lamp is defective	Check the lighting of Lamp.	Replace the Lamp.

Table 5-3. Sensor Status

Sensor	Point	Signal Level	Status
Cover Open Sensor	Pin1, 2 of CN3	High (5V)	Cover Close
		Low (GND)	Cover Open
Carriage Home Position Sensor	Pin1, GND of CN2	High (5V)	At Home Position
		Low (GND)	Out of home position

Table 5-4. Motor

Motor	Resistance
Carriage Motor	5.3 Ω \pm 10% (at 25 °C)

CHAPTER

6

MAINTENANCE

6.1 Maintenance

Refer to the Chapter 6 of Service Manual of B81306*.

CHAPTER

7

APPENDIX

7.1 Connector Summary

Figure below illustrates how the primary components are connected. Table below summarizes the functions and sizes of the connectors.

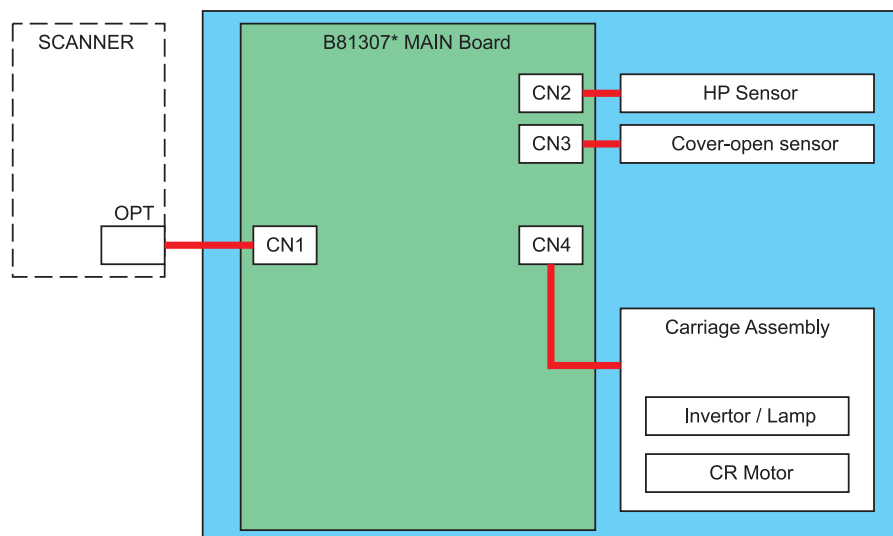


Figure 7-1. Cable Connections

Table 7-1. Connector Summary

Board	Connector	Function	Pins
B81307* MAIN	CN1	Interface (to Scanner)	15
	CN2	HP sensor	3
	CN3	Cover Open Sensor	2
	CN4	LAMP, CARRIAGE MOTOR	13

Table 7-2. Connector Pin Assignments-CN1

Pin	I/O	Signal Name	Function
1	O	DSW1	Carriage Home position Signal
2	O	DSW2	Cover Open Signal
3	--	(N.A.)	No connector
4	I	LAMP	Lamp Control Signal
5	O		Brightness monitor feedback signal
6	--	+5V	+5VDC
7	--	GND	Ground
8	--	+24V	+24VDC
9		TXD	Transmitted Data
10		SCK	Option Clock
11		LOD	Option Control
12		SEL	Select Signal
13	--	GND	Ground
14	--	GND	Ground
15	--	+24V	+24VDC

Table 7-3. Connector Pin Assignments-CN2

Pin	I/O	Signal Name	Function
1	I	HP	Carriage Home Position Signal
2	--	GND	Ground
3	--	+5V	+5VDC

Table 7-4. Connector Pin Assignments-CN3

Pin	I/O	Signal Name	Function
1	I	CO	Cover Open Signal
2	--	GND	Ground

Table 7-5. Connector Pin Assignments-CN4

Pin	I/O	Signal Name	Function
1	--	+24	+24VDC
2	--	+24	+24VDC
3	--	GND	Ground
4	--	GND	Ground
5	O	LAMP	Lamp Control Signal
6	I	PD -	PD (-) signal
7	I	PD +	PD (+) signal
8	--	GND	Ground
9	--	GND	Ground
10	O	A	CR Motor drive signal (Phase A)
11	O	A/	CR Motor drive signal (Phase /A)
12	O	B	CR Motor drive signal (Phase B)
13	O	B/	CR Motor drive signal (Phase /B)

7.2 Circuit Board Component Layout

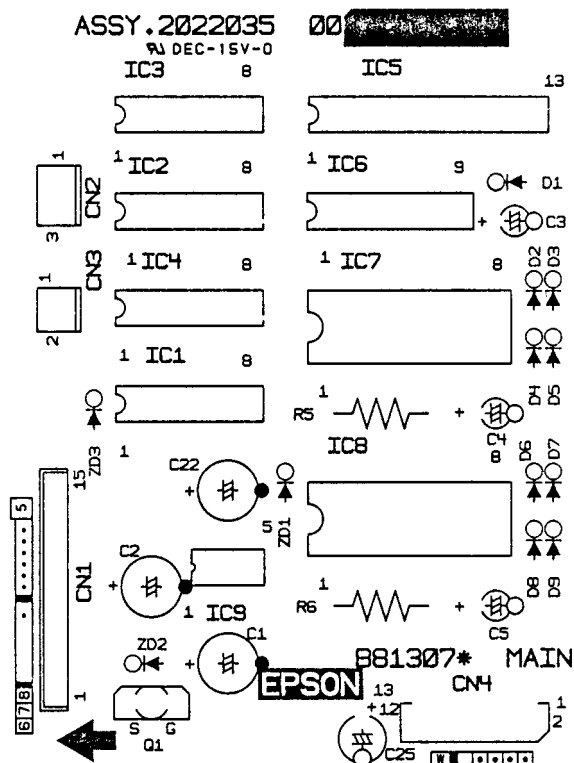


Figure 7-2. B81307* Main Board Component Layout

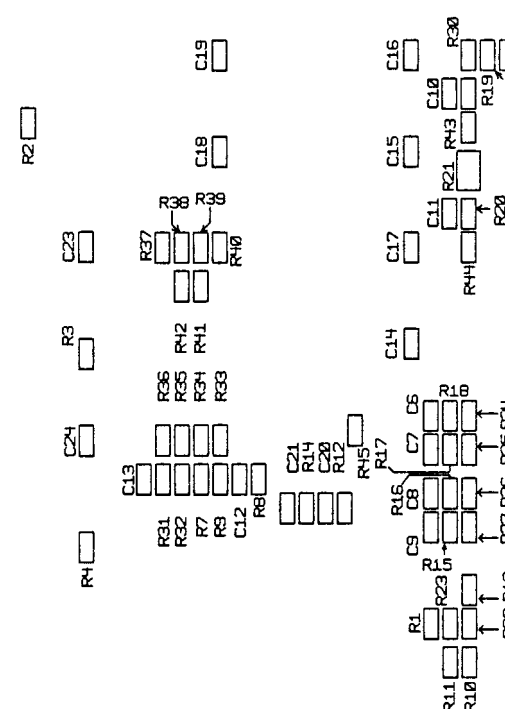


Figure 7-3. B81307* Main Board Component Layout (Soldered side)

7.3 Circuit Diagram

Refer to the next page for the circuit diagram of the main board (B81307*Main).

7.4 Parts List and Exploded Diagram

Table 7-6. Parts List

No.	Parts Name	No.	Parts Name
1	Individual Carton Box	2	Outer Carton Bos
3	Pad, TPU	4	Plastic Protective Bag
5	Plastic Protective Bag 280x400x0.08T	6	Plastic Bag
200	Board Assy.,Main	330	Harness
331	Harness	332	Harness
800	Housing, Upper	801	Cover, Housing
802	Scallop S.P.-A, 1.2x 8, S/NA	803	Frame, Cover
804	Housing, Lower	805	Glass
806	Frame, Side	807	Foot
808	Double Side, Tape, 200 x 10	809	Film Holder
810	Holder, Shaft, Front	811	Shaft, CR, Guide
812	Holder, Shaft, Rear	813	Shield Plate
814	Holder, Assy.	815	S.Thumb Screw, 4x10, F/NI
816	Guide, Document	817	Guide, Document A
818	Mat	819	Clamp, Cable
821	Cover, CR	822	Diffusible Plate, CR
823	Fram Assy, Base	824	Slider, CR
825	Plate, Slader	826	Combination Gear, 22.2, 69.3
827	Motor	828	Lamp Assy., TPU
829	Board Assy., Inverter	830	Cable, CR
831	Foot, CR	832	Roller, Carriage;C
833	Shaft, Roller	834	Detector, Leaf, B1

Table 7-7. Parts List

No.	Parts Name	No.	Parts Name
835	Detector, HP, B	836	Double Side,Tape, 238x7
837	Double Side Tape, 30x3	839	Mini Clamp
840	C.B.S.Screw, 3x6, F/ZN	841	Retaining Ring
842	Plain Washer	843	Retaining Ring
844	C.B.B.Screw, 4x 10, F/NI	845	C.B.B.Screw
846	C.B.B-Tite(P2)Screw, 4x12, F/ZN	847	Cup Screw
848	C.B.B.Screw	849	C.B.S. Screw
850	C.F.F.Screw, 4x6, F/ZR	851	Cover, Ferrite Core
852	Label, Film Guide	853	Reflector TPU
854	Label, Carriage Lock;B	855	Ferrite Core

