

# *Marshall*

## **AMPLIFICATION**

# **EL 34**

**FEBRUARY 1994  
CONVERSION  
MANUAL FOR  
50 & 100 WATT  
MODELS**

# **5881**

**THE ENCLOSED MODIFICATION SHOULD  
ONLY BE CARRIED OUT BY QUALIFIED  
ENGINEERS**

**Research and Development**

**5881**

**Introduction**

**Section 1** 1959 SLP and 1987X models.

**Section 2** SL-X models 2500, 2100.

**Section 3** 30th Anniversary models  
6100 & 6101.

**Section 4** JCM900 Dual Reverb models.

**IMPORTANT NOTICE**

This handbook is for the reference and use by qualified personnel only.  
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however caused, at the hands of third party personnel.

**Models 1959 SLP and 1987X  
(also most JCM800 and before  
50 & 100 watt models)**

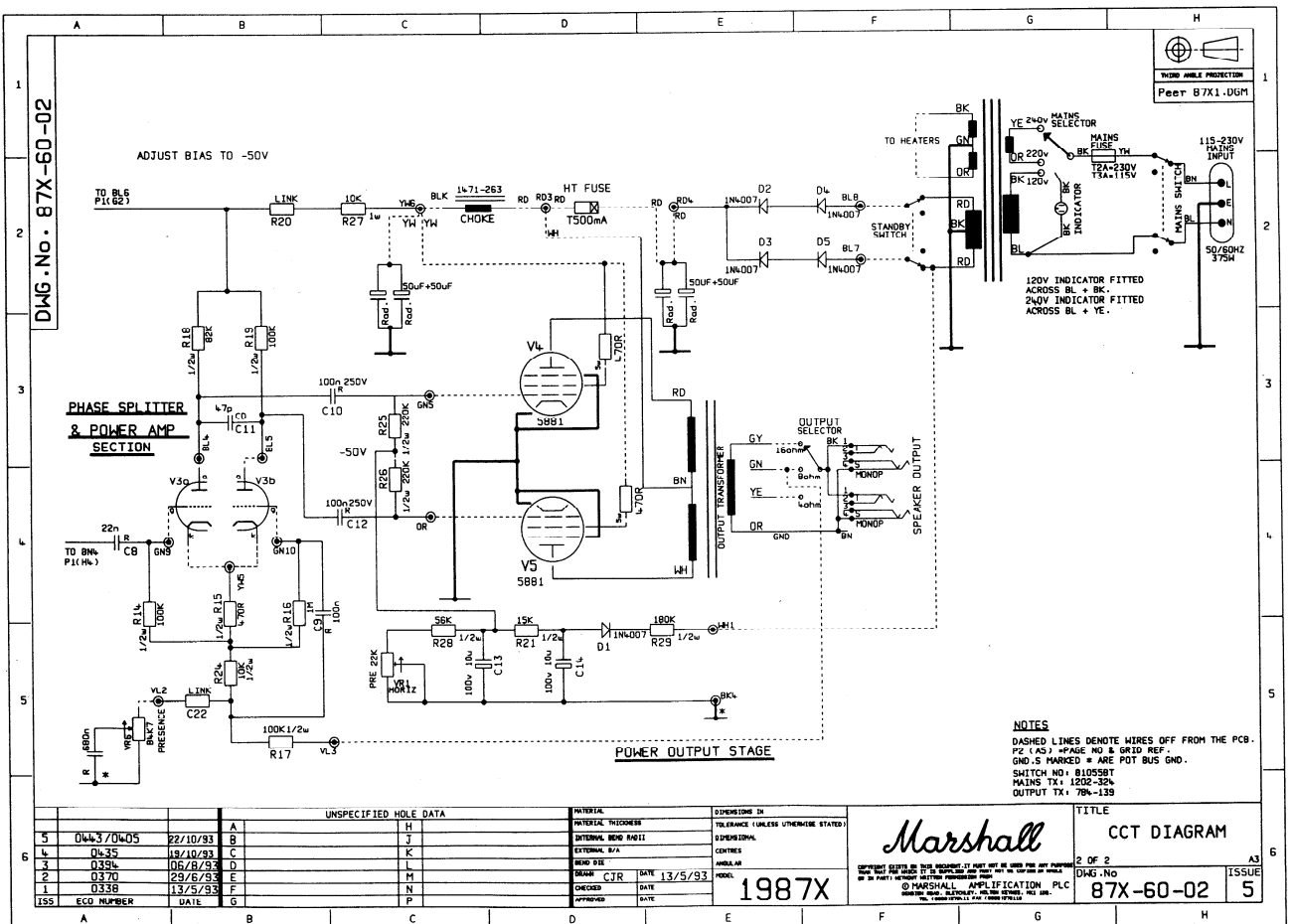
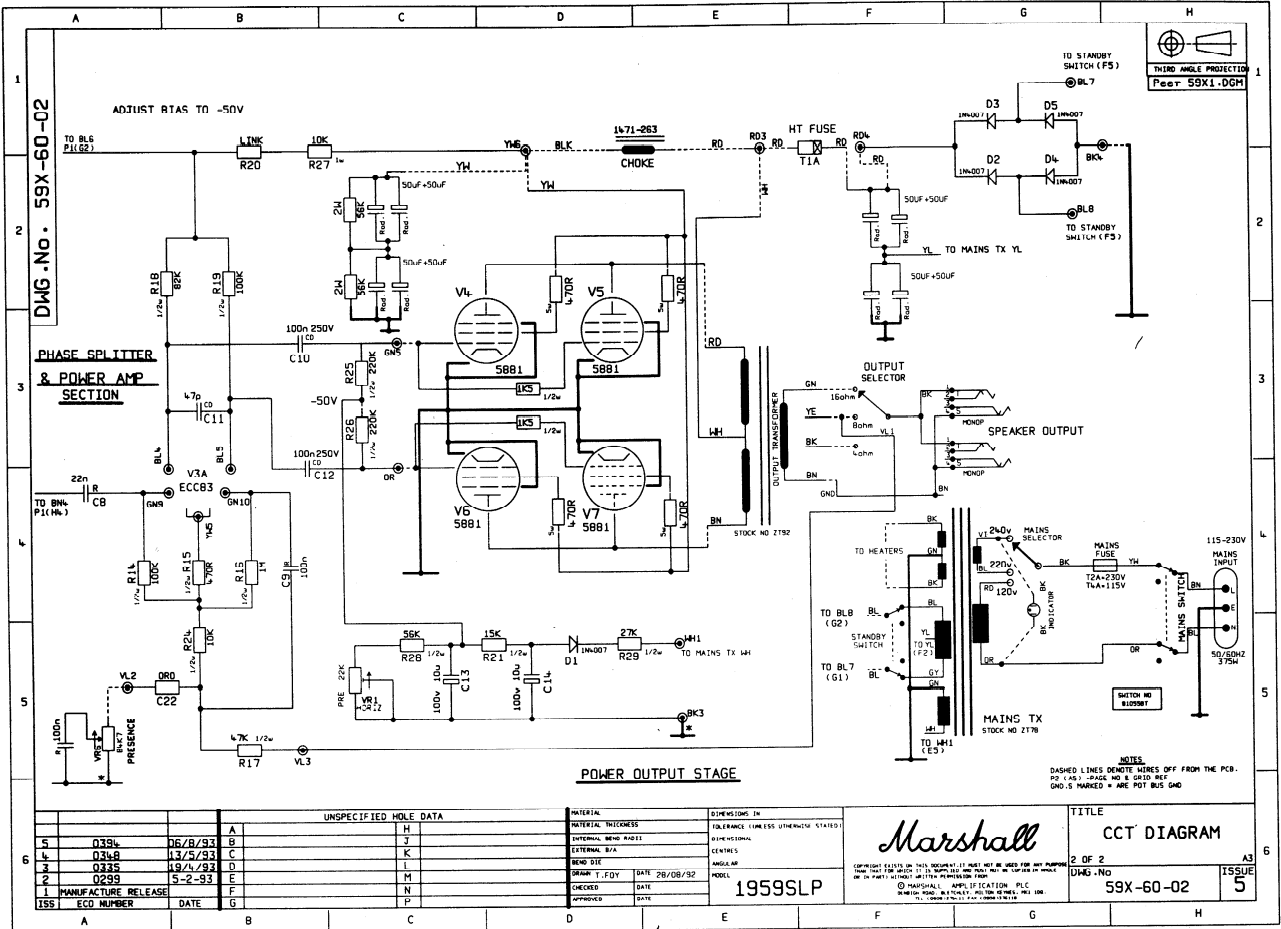
①

# 5881

| <b>1959X Conversion</b>                       |                  |                       |                    |                  |                  |
|-----------------------------------------------|------------------|-----------------------|--------------------|------------------|------------------|
| <b>EL34 Power Valves to 5881 Power Valves</b> |                  |                       |                    |                  |                  |
| <b>Resistors</b>                              | <b>Stock No.</b> | <b>Qty</b>            | <b>Description</b> | <b>New Value</b> | <b>Old Value</b> |
|                                               | * R76            | 1                     | R14                | 100K, 1/2 watt   | 1M, 1/4 watt     |
|                                               |                  | 1                     | R20                | Link             | 10K, 1 watt      |
|                                               | R73              | 1                     | R28                | 56K, 1/2 watt    | 47K, 1/4 watt    |
|                                               | 4                | Screen Grid Resistors | 470Ω, 5 watt       | 1KΩ, 5 watt      |                  |
| <b>Capacitors</b>                             | TC1              | 2                     | C10, C12           | 100n,250v        | 22n,250v         |

| <b>1987X Conversion</b>                       |                  |            |                       |                  |                  |
|-----------------------------------------------|------------------|------------|-----------------------|------------------|------------------|
| <b>EL34 Power Valves to 5881 Power Valves</b> |                  |            |                       |                  |                  |
| <b>Resistors</b>                              | <b>Stock No.</b> | <b>Qty</b> | <b>Description</b>    | <b>New Value</b> | <b>Old Value</b> |
|                                               | * R76            | 1          | R14                   | 100K, 1/2 watt   | 1MΩ, 1/2 watt    |
|                                               | R190             | 1          | R29                   | 180KΩ, 1/2 watt  | 220KΩ, 1/2 watt  |
|                                               | R45              | 2          | Screen Grid Resistors | 470Ω, 5 watt     | 1KΩ, 5 watt      |
| <b>Capacitors</b>                             | TC1              | 2          | C10, C12              | 100n,250v        | 22n,250v         |

\* Do not change this resistor on the following models: 2205, 2210, 4140, 4145, 4150 and Artiste models.  
Set bias to approx -50 volts.



## 2500, 2100 SL-X Models

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| 2500, 2100 SL-X Conversion             |           |     |                     |                           |                                   |
|----------------------------------------|-----------|-----|---------------------|---------------------------|-----------------------------------|
| EL34 Power Valves to 5881 Power Valves |           |     |                     |                           |                                   |
|                                        | Stock No. | Qty | Description         | New Value                 | Old Value                         |
| Resistors                              | R111      | 1   | R23                 | 100K $\frac{1}{4}$ watt   | 91K $\Omega$ , $\frac{1}{4}$ watt |
|                                        | R129      | 1   | R28                 | 56K, $\frac{1}{4}$ watt   | 68K $\Omega$ , $\frac{1}{4}$ watt |
|                                        | R116      | 1   | R29                 | 10K $\frac{1}{4}$ watt    | 27K $\Omega$ , $\frac{1}{4}$ watt |
|                                        | R34       | 1   | R30                 | 10K, 1 watt (metal oxide) | 22K $\Omega$ , 1 watt             |
|                                        | R45       | 4   | *R31, R32, R33, R34 | 470 $\Omega$ , 5 watt     | 1K, 5 watt                        |

Fit a 33K (ST No. R113) in parallel with a 4n7 (ST No. C134) between the 4 Ohm tap on the output transformer and the Violet wire (i.e. cut violet wire and fit cap and resistor in) See circuit diagram).

Remove link on HT can so that there is only 50 $\mu$ f of smoothing (i.e. Fit brown and Red wires to one tag. Brown from output transformer and Red from Rd2 on PCB SL-X a-60-00).

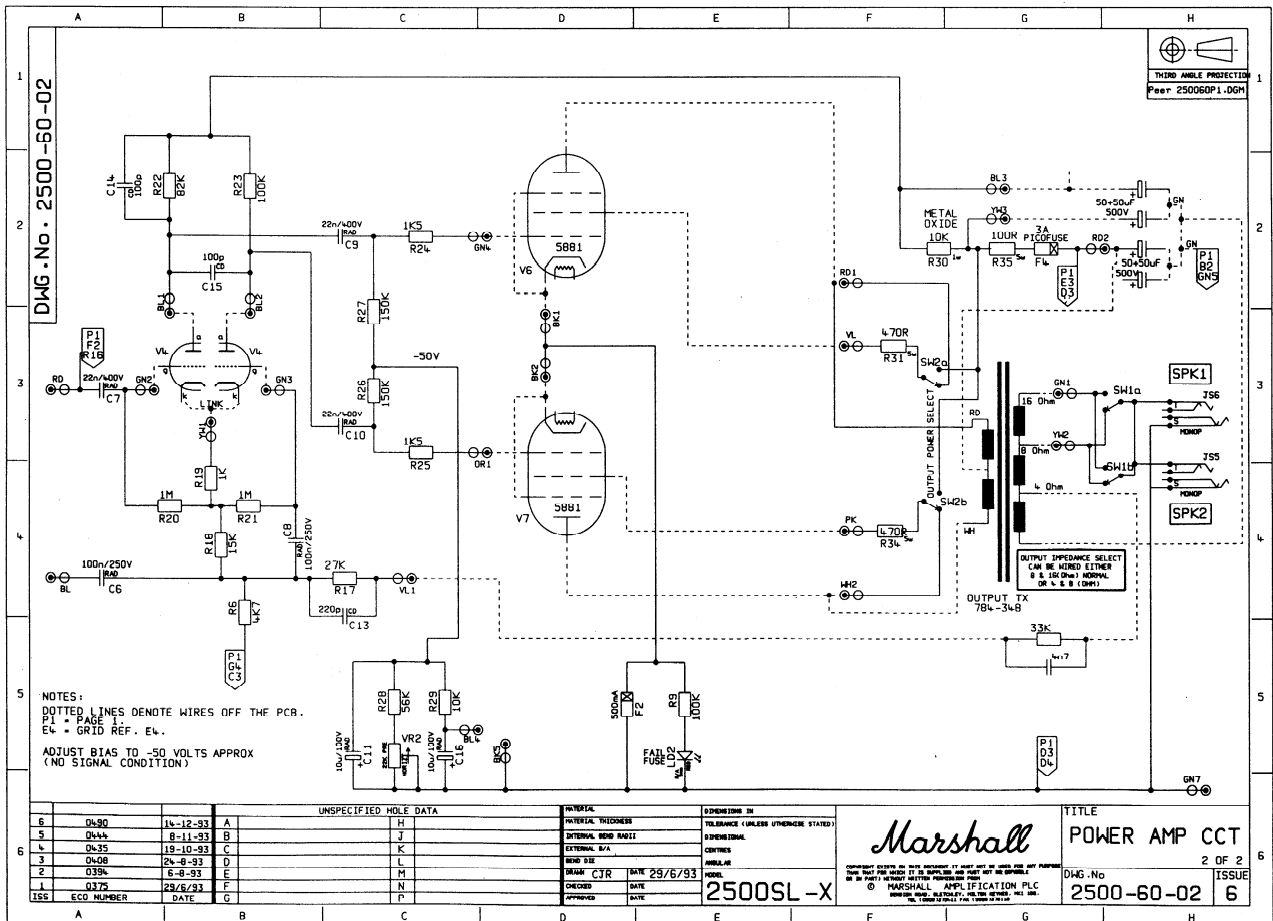
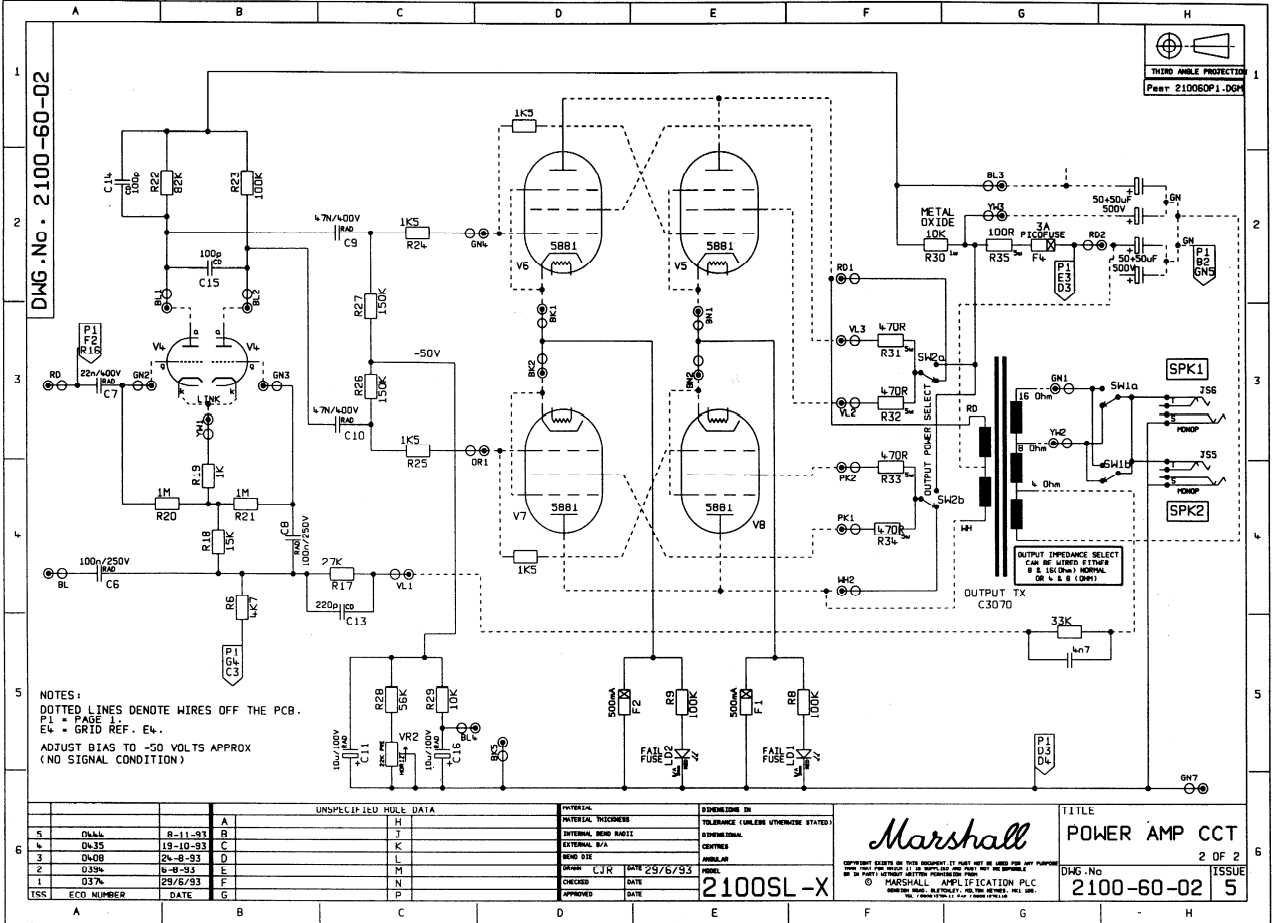
\* Omit R32 & R33 on 2500's.

| 2500, 2100 SL-X Conversion          |           |     |                     |                                    |                                    |
|-------------------------------------|-----------|-----|---------------------|------------------------------------|------------------------------------|
| 5881 Upgrade *See Introduction note |           |     |                     |                                    |                                    |
|                                     | Stock No. | Qty | Description         | New Value                          | Old Value                          |
| Resistors                           | R41       | 1   | R18                 | 15K, $\frac{1}{4}$ watt            | 10K $\Omega$ , $\frac{1}{4}$ watt  |
|                                     | R122      | 1   | R19                 | 1K, $\frac{1}{4}$ watt             | 470 $\Omega$ , $\frac{1}{4}$ watt  |
|                                     | R108      | 1   | R20                 | 1M, $\frac{1}{4}$ watt             | 100K, $\frac{1}{4}$ watt           |
|                                     | R91       | 1   | R26, R27            | 150K $\Omega$ , $\frac{1}{4}$ watt | 220K $\Omega$ , $\frac{1}{4}$ watt |
| Capacitors                          | TC4       | 2   | C9, C10 2500's Only | 22n,400v                           | 100n, 250v                         |
|                                     | TC5       | 2   | C9, C10 2100's Only | 47n,400v                           | 100n, 250v                         |

Fit a 33K (ST No. C114) in Parallel with a 4n7 (ST No. C134) between the 4 Ohm tap on the output transformer and the Violet wire (i.e. Cut the Violet wire and fit cap and resistor in) See circuit diagram).

Remove link on HT can so that there is only 50 $\mu$ f of smoothing (i.e. Fit Brown and Red wire to one tag. Brown from output transformer and Red from Rd2 on PCB SL-Xa-60-00).

Set bias to approx -50 volts.



## 30th Anniversary models 6100 & 6101

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| 30th Anniversary 6100/6101 Conversion  |           |     |                        |                 |                  |
|----------------------------------------|-----------|-----|------------------------|-----------------|------------------|
| EL34 Power Valves to 5881 Power Valves |           |     |                        |                 |                  |
| Resistors                              | Stock No. | Qty | Description            | New Value       | Old Value        |
|                                        | R45       | 4   | R251, R252, R253, R254 | 470Ω, 5 watt    | 1KΩ, 5 watt      |
|                                        | R111      | 1   | R231                   | 100KΩ, 1/4 watt | 91KΩ, 1/4 watt   |
|                                        | R91       | 2   | R234, R235             | 150KΩ, 1/4 watt | 220KΩ, 1/4 watt  |
|                                        | R113      | 1   | R212,                  | 33KΩ, 1/4 watt  | 22KΩ, 1/4 watt   |
|                                        | R149      | 1   | R249                   | 1K5, 1 watt     | 820Ω, 1 watt     |
|                                        |           | 1   | R239                   | Link            | 470Ω, 5 watt     |
|                                        | R10       | 1   | R236                   | 2K2Ω, 5 watt    | 6K8Ω, 1 watt     |
| Capacitors                             | C471      | 2   | C215, C216             | 47μ, 450v       | 220μf, 400 volts |
|                                        | C29R      | 1   | C226                   | 22μf, 25v       | 1μf, 63 volts    |
|                                        |           | 1   | C231                   | Removed         | 47μf, 450 volts  |

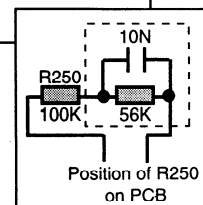
Fit a 56K (ST No. R129) in parallel with a 10n (ST No. C135), fitted in series with R250. (See Diagram below).

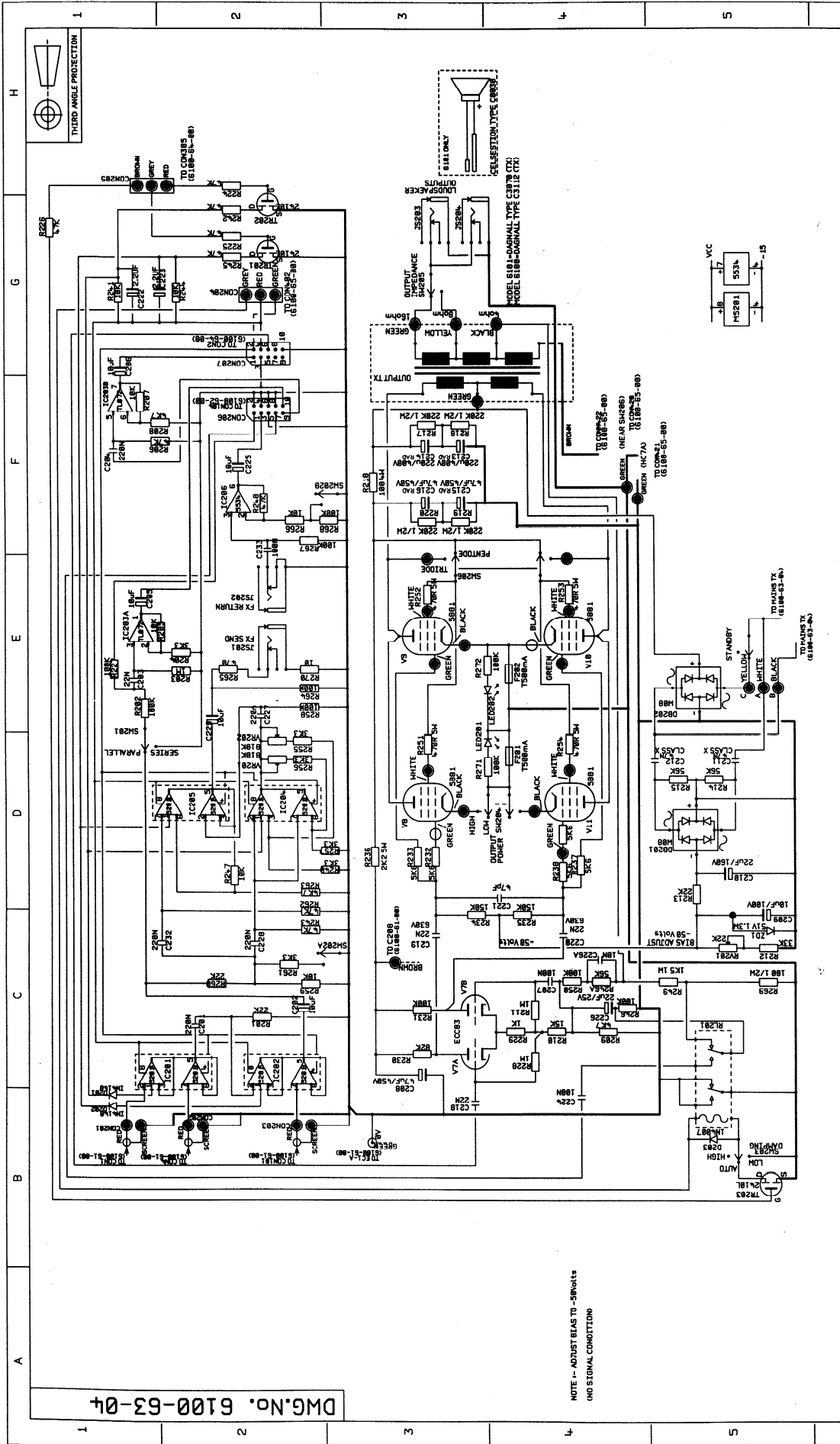
| 30th Anniversary 6100/6101 Conversion |           |     |             |                |                 |
|---------------------------------------|-----------|-----|-------------|----------------|-----------------|
| 5881 Upgrade *See Introduction note   |           |     |             |                |                 |
| Resistors                             | Stock No. | Qty | Description | New Value      | Old Value       |
|                                       | R91       | 2   | R234, R235  | 150K, 1/4 watt | 220KΩ, 1/4 watt |
|                                       | R41       | 1   | R210        | 15K, 1/4 watt  | 10KΩ, 1/4 watt  |
|                                       | R113      | 1   | R212        | 33K, 1/4 watt  | 22KΩ, 1/4 watt  |
|                                       | R108      | 1   | R228        | 1MΩ, 1/4 watt  | 100KΩ, 1/4 watt |
|                                       | R122      | 1   | R229        | 1K, 1/4 watt   | 470KΩ, 1/4 watt |
|                                       | R149      | 1   | R249        | 1K5, 1 watt    | 820Ω, 1 watt    |
| Capacitors                            | C222      |     | C219, C220  | 22n, 680v      | 100n, 250v      |
|                                       | C29R      |     | C226        | 22μ, 25v       | 1μf, 63v        |

Fit a 56K in parallel with a 10n fitted in series with R250 (56K ST No. R129, 10n ST No. C135). (See Diagram Right).

Change R58 on Pre-amp circuit to 10K 2W (R299).

Set bias to approx -50 volts.





DWG.No. 6100-63-04

NOTE - ADJUST BIAS TO -50volts  
(NO SIGNAL CONDITION)

| UNSPECIFIED HOLE DATA |            | DIMENSIONS IN TOLERANCE UNLESS OTHERWISE STATED |   |
|-----------------------|------------|-------------------------------------------------|---|
|                       |            |                                                 |   |
| 7                     | 04.36      | 26/10/93                                        | A |
| 6                     | 04.41      | 19/10/93                                        | B |
| 5                     | 04.35      | 15/10/93                                        | C |
| 4                     | 04.08      | 24-8-93                                         | D |
| 3                     | 03.94      | 8-8-93                                          | E |
| 2                     | 02.49      | 15/07/92                                        | F |
| 155                   | ECO NUMBER | DATE                                            | G |

| MATERIAL            | DIMENSIONS IN TOLERANCE UNLESS OTHERWISE STATED |
|---------------------|-------------------------------------------------|
| MATERIAL TOLERANCES |                                                 |
| MATERIAL DIMENSIONS |                                                 |
| EXTERNAL DIA        |                                                 |
| BORE DIA            |                                                 |
| DRILL T.F.          | 15°/P/R                                         |
| CHECKED             | DATE                                            |
| APPROVED            | DATE                                            |

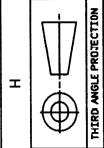
| 6100/6101 |           |
|-----------|-----------|
| MODEL     | 6100/6101 |
| ANALOG    |           |
| DATE      | 15/07/92  |
| DATE      |           |

| POWER AMP CCT |               |
|---------------|---------------|
| TITLE         | POWER AMP CCT |
| DWG.No        | 6100-63-04    |
| ISSUE         | 7             |

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# JCM 900; Dual Reverb all models.

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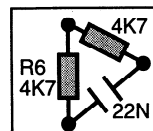
# 5881

| Dual Reverb Conversion                 |           |     |                     |                          |                 |
|----------------------------------------|-----------|-----|---------------------|--------------------------|-----------------|
| EI34 Power Valves to 5881 Power Valves |           |     |                     |                          |                 |
|                                        | Stock No. | Qty | Description         | New Value                | Old Value       |
| Resistors                              | R45       | 4   | *R31, R32, R33, R34 | 470Ω, 5 watt             | 1K or 2K2 5watt |
|                                        | R34       | 1   | R30                 | 10K 1 watt (metal oxide) | 22K, 1 watt     |
|                                        | R8        | 1   | R29                 | 8K2, 1/4 watt            | 15K, 1/4 watt   |
|                                        | R133      | 1   | R28                 | 68K, 1/4 watt            | 56K, 1/4 watt   |
|                                        | R111      | 1   | R23                 | 100K, 1/4 watt           | 91K, 1/4 watt   |
|                                        | R112      | 1   | R17                 | 47K, 1/4 watt            | 100K, 1/4 watt  |

Fit a 56K (ST No. R129) in parallel with a 10n (ST No. C135) between the 4 Ohm tap on the output transformer and the Violet wire (i.e. Cut Violet wire and fit cap and resistor in) See circuit diagram).

Fit a 4K7 (ST No. R118) in series with a 22n (ST No. C136) across R6 , 4100a, 4500 only. (See diagram)

Remove link on HT can so that there is only 50μf of smoothing (i.e. Fit Brown and Red wires to one tag, Brown from output transformer and Red from Rd2 on PCB SL-X a-60-00).



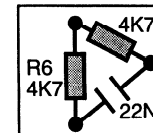
\* Omit R32 & R33 for 50 watt models.

| Dual Reverb Conversion              |           |     |                         |                |                 |
|-------------------------------------|-----------|-----|-------------------------|----------------|-----------------|
| 5881 Upgrade *See Introduction note |           |     |                         |                |                 |
|                                     | Stock No. | Qty | Description             | New Value      | Old Value       |
| Resistors                           | R112      | 1   | R17                     | 47KΩ, 1/4 watt | 100KΩ, 1/4 watt |
|                                     | R41       | 1   | R18                     | 15KΩ, 1/4 watt | 10KΩ, 1/4 watt  |
|                                     | R122      | 1   | R19                     | 1KΩ, 1/4 watt  | 470Ω, 1/4 watt  |
|                                     | R108      | 1   | R20                     | 1MΩ, 1/4 watt  | 100KΩ, 1/4 watt |
|                                     | R91       | 2   | R26, R27                | 150K, 1/4 watt | 220KΩ, 1/4 watt |
| Capacitors                          | C14       | 2   | C13, C14                | 100P Disc      | Omitted         |
|                                     | TC4       | 2   | C10, C9 50 watt models  | 22n, 400v      | 100n, 250v      |
|                                     | TC5       | 2   | C10, C9 100 watt models | 47n, 400v      | 100n, 250v      |

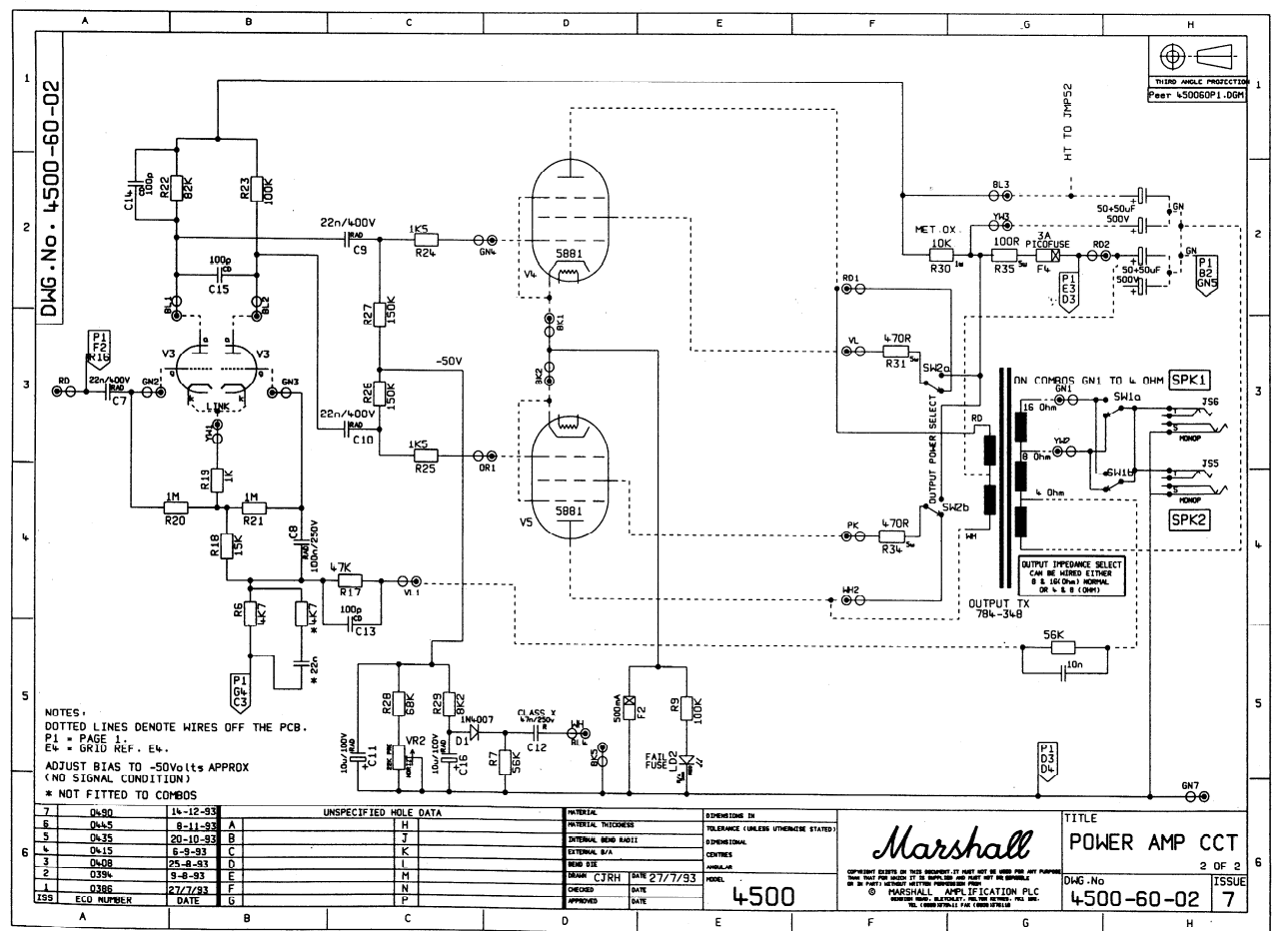
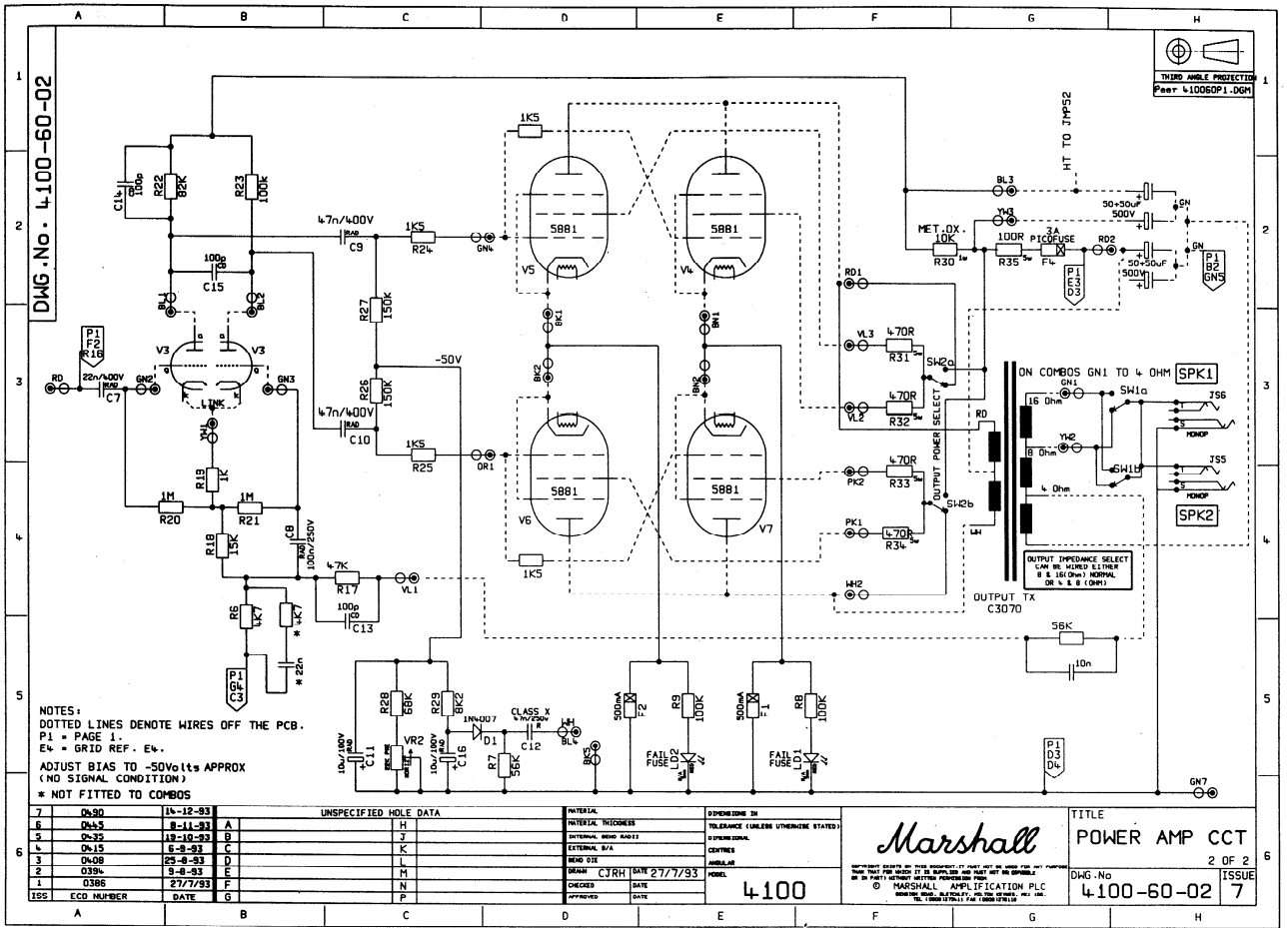
Fit a 56K (ST No. R129) in parallel with a 10n (ST No. C135) between the 4 Ohm tap on the output transformer and the Violet wire (i.e. Cut Violet wire and fit cap and resistor in) See circuit diagram).

Fit a 4K7 (ST No. R118) in series with a 22n (ST No. C136) across R6 4100 & 4500 only. (See diagram)

Remove link on HT can so that there is only 50μf of smoothing (i.e. fit Brown and Red wires to one tag. Brown from output transformer and Red Rd2 on PCB SL-X a-60-00).



Set bias to approx -50 volts.



# *Marshall*

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**M0081/93/8/A**

