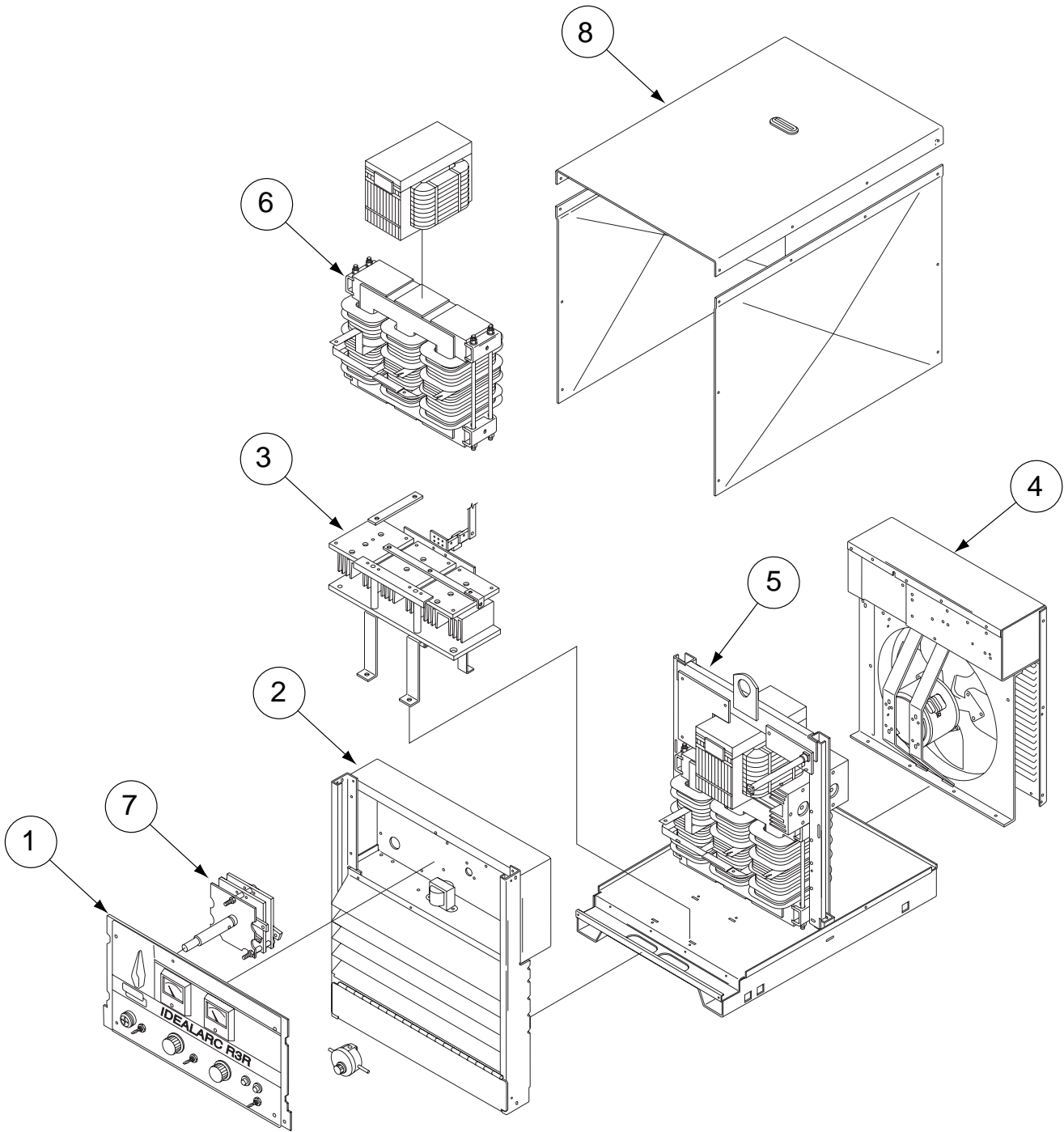


PARTS LIST
for
Idealarc R3R 500-I & 600-I

Illustration of Sub-Assemblies

Operative: AP-217-A
Supersedes: May 2003
NEW



Idealarc R3R 500-I & 600-I

(for codes 1385 & above)

| Sub Assembly Item No. → | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------------------|--------------------|---------------------|------------------------|---------------------|-------------------------|--------------------------|-----------------|----------------------|----------------|
| SUB ASSEMBLY PAGE NAME → | Optional Equipment | Miscellaneous Items | Control Panel Assembly | Case Front Assembly | 3 Phase Bridge Assembly | Input Box & Fan Assembly | Centre Assembly | Transformer Assembly | Cover Assembly |
| PAGE NO. → | AP217-B.1 | AP217-B.2 | AP217-C | AP217-D | AP217-E | AP217-F | AP217-G | AP217-H | AP217-J |
| CODE NO. ↓ | | | | | | | | | |
| R3R 500-I (415V) | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1456 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1457 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1528 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1645 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1675 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1706 | | | | | | | | | |
| R3R 500-I (220/380/440) | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1437 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1442 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1446 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1475 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1573 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1681 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1694 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| 1704 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| R3R500-I (380/500) | | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 |
| 1458 | | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 |
| 1705 | | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 |
| R3R 600-I (220/380/440/3/50/60) | | 1 | 1 | 1 | 2 | 1 | 1 | 4 | 1 |
| 1425 | | 1 | 1 | 1 | 2 | 1 | 1 | 4 | 1 |
| 1574 | | 1 | 1 | 1 | 2 | 1 | 1 | 4 | 1 |
| 1696 | | 1 | 1 | 1 | 2 | 1 | 1 | 4 | 1 |
| R3R 600-I (415V) | | 1 | 1 | 1 | 2 | 1 | 1 | 5 | 1 |
| 1385 | | 1 | 1 | 1 | 2 | 1 | 1 | 5 | 1 |
| 1502 | | 1 | 1 | 1 | 2 | 1 | 1 | 5 | 1 |
| 1603 | | 1 | 1 | 1 | 2 | 1 | 1 | 5 | 1 |

NOTES

Optional Equipment

Operative: AP-217B
 May 2003
 Supersedes: NEW

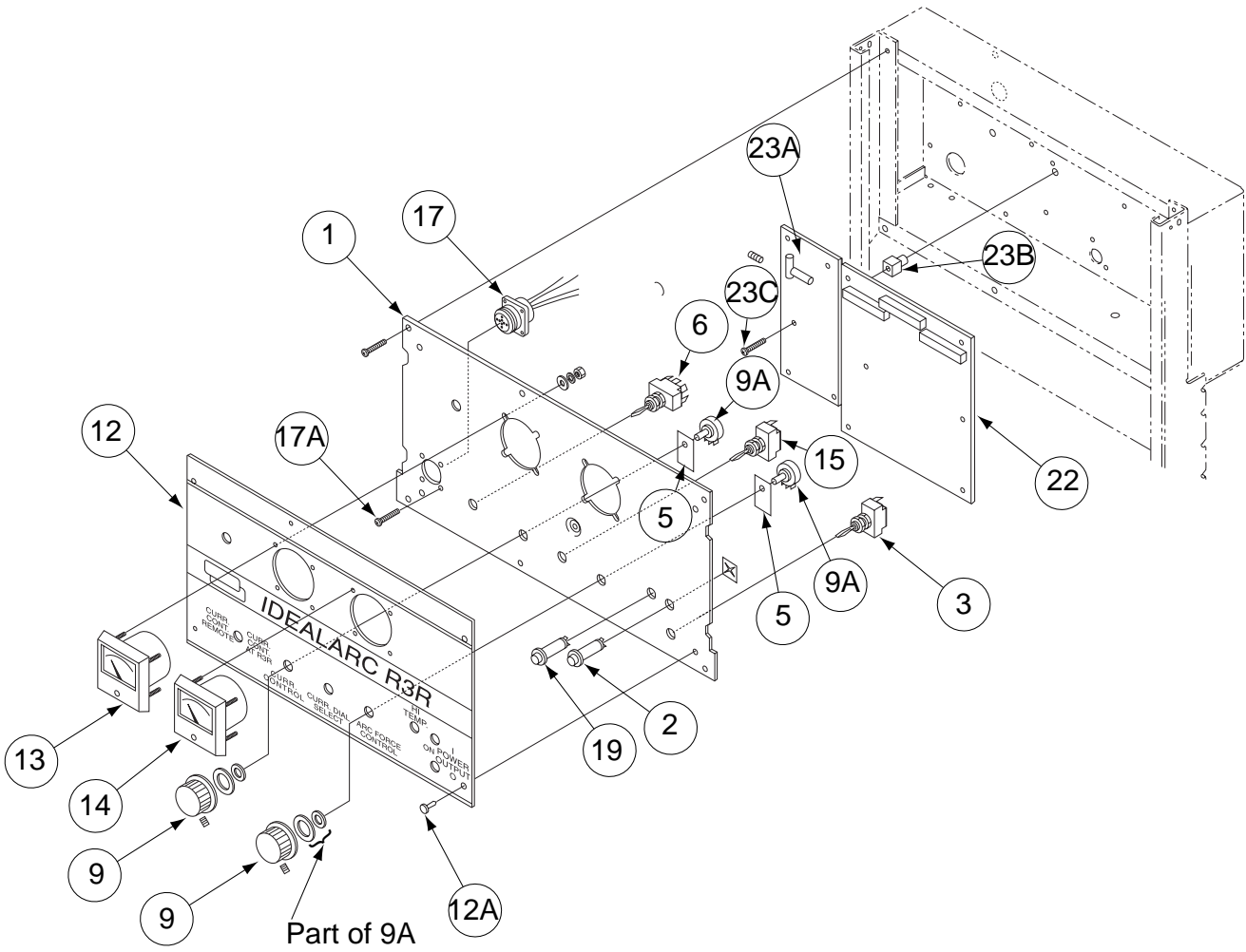
Miscellaneous Options Available for your machine are listed below:

Indicates a change this printing.

| DESCRIPTION | PART NO. |
|--|---------------|
| Hi-Freq | Order K799-1 |
| Undercarriage | Order KA1236 |
| Undercarriage (gas cylinder) | Order KA1237 |
| Remote Control 8.5m 6 pin | Order K857 |
| Remote Control 20m 6 pin | Order K857-20 |
| Foot Amptrol | Order K870 |
| Hand Amptrol (for LA-9, LA-17 & LW-20 TIG Torches) | Order K963-1 |
| Hand Amptrol (for LA-26 & LW-18 TIG Torches) | Order K963-2 |
| Twist-Mate Plug (25-95mm) (R3R 500I & 600-I) | Order KA1346 |
| Factory Fit Options | |
| TIG Arc Start | Order call |
| TIG Arc Start & Gas Control | Order call |
| Pocket Amptrol | Order call |

Control Panel Assembly

Operative: AP-217-C
Supersedes: May 2003
NEW



Indicates a change this printing.
 * Items not illustrated.

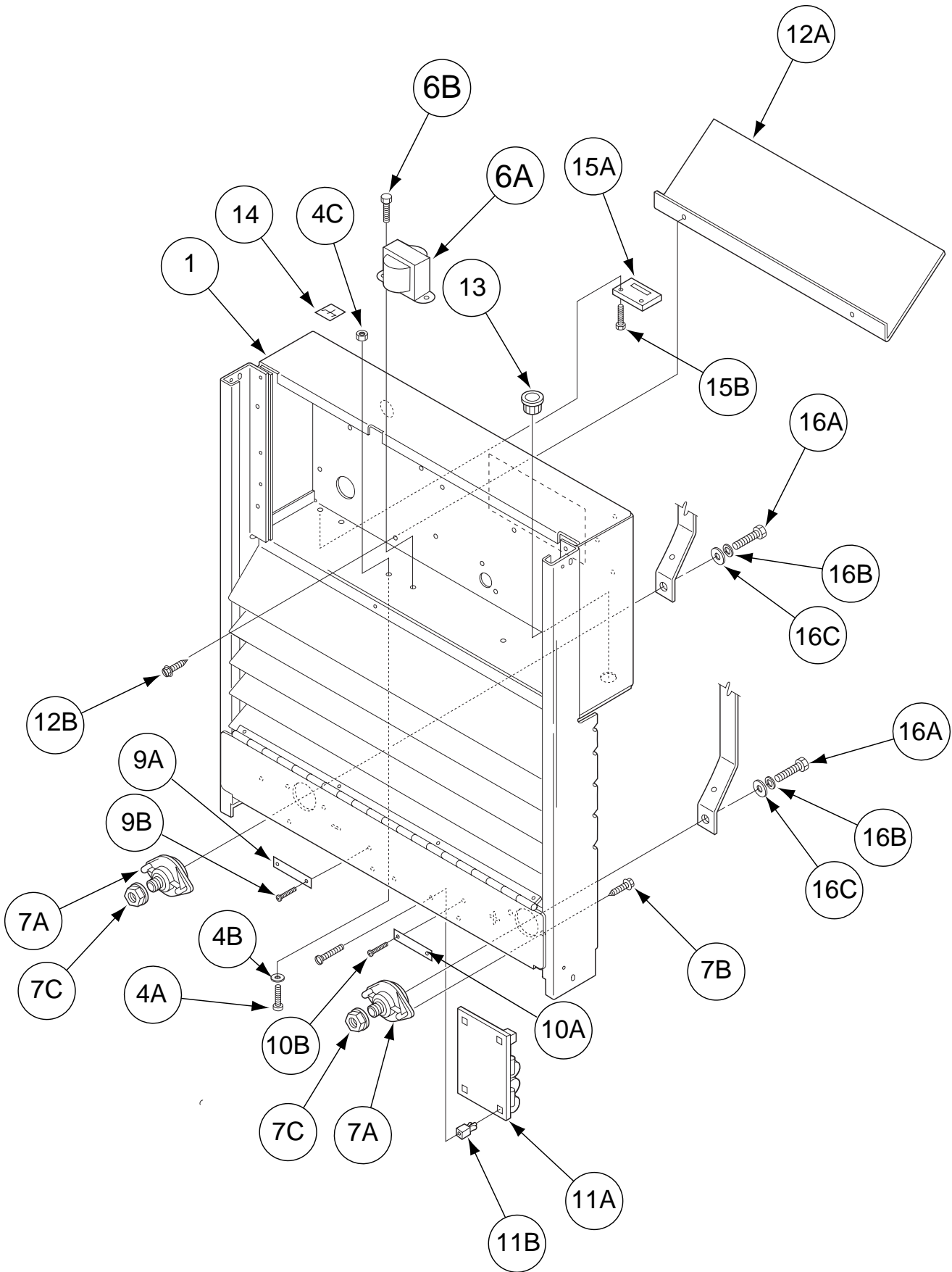
Use only the parts marked "X" in the column under the heading number called for in the model index page.

Recommended Spare Parts are highlighted in bold

| ITEM | DESCRIPTION | PART NO. | QTY. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|--|------------------|------|---|---|---|---|---|---|---|---|---|
| 1 | Control Box Cover | AM3198 | 1 | x | | | | | | | | |
| 2 | Pilot Light | AT3384 | 1 | x | | | | | | | | |
| 3 | Power Switch (SW1) | T13562 | 1 | x | | | | | | | | |
| 5 | Insulation | T12792-1 | 2 | x | | | | | | | | |
| 6 | Remote Switch (SW2) | T10800-39 | 1 | x | | | | | | | | |
| 9 | Knob | T10491 | 2 | x | | | | | | | | |
| 9A | Potentiometer | T10812-40 | 2 | x | | | | | | | | |
| 12 | Nameplate R3R 500-I | AM3198B | 1 | x | | | | | | | | |
| 12 | Nameplate R3R 600-I | AM3198D | | | | | | | | | | |
| 13 | Voltmeter (optional) 60V | M15538-1 | 4 | x | | | | | | | | |
| 13 | Voltmeter (optional) 80V | M15538-2 | | | | | | | | | | |
| 14 | Ammeter (optional) 600 amp | M15539-2 | 1 | x | | | | | | | | |
| 14 | Ammeter (optional) 800 amp | M15593-3 | 1 | x | | | | | | | | |
| 17 | Amphenol Connector) | S12021-32 | 1 | x | | | | | | | | |
| 17A | Self Tapping Screw | S8025-73 | 4 | x | | | | | | | | |
| 18 | Amphenol Connector Cap (not shown) | S17062-2 | 1 | x | | | | | | | | |
| 19 | Pilot Light (High Temperature) Amber | AT3385-1 | 1 | x | | | | | | | | |
| 22 | PCB Assembly R3R 500-I | G1574-[] | 1 | x | | | | | | | | |
| 22 | PCB Assembly R3R 600-I | G1575-[] | 1 | x | | | | | | | | |
| 22B | Expansion Nut (not shown) | S14020-3 | 7 | x | | | | | | | | |
| 22C | Self Tapping Screw | S8025-71 | 7 | x | | | | | | | | |
| 23A | PC Board (w/pocket amptrol) (optional) | L6653-[] | 1 | x | | | | | | | | |
| 23B | Expansion Nut | S14020-3 | 5 | x | | | | | | | | |
| 23C | Self Tapping Screw | S8025-71 | 5 | x | | | | | | | | |
| <div style="border: 1px solid black; padding: 5px;"> <p>Note: when ordering new printed circuit boards indicate the dash number [] of the "Old" board that is to be replaced. This will aid Lincoln in supplying the correct and latest board along with any necessary jumpers or adapters. The dash number brackets [] have purposely been left blank so as to eliminate errors, confusion and updates.</p> </div> | | | | | | | | | | | | |

Case Front Assembly

Operative: AP-217-D
Supersedes: May 2003
NEW



Indicates a change this printing.

* Items not illustrated.

Use only the parts marked "X" in the column under the heading number called for in the model index page.

Recommended Spare Parts are highlighted in bold

| ITEM | DESCRIPTION | PART NO. | QTY. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|---|-----------------|------|---|---|---|---|---|---|---|---|---|
| 1 | Front Support, Louvres & Control Box | AL2217-3 | 1 | x | | | | | | | | |
| 4A | Thread Forming Screw | S9225-36 | 1 | x | | | | | | | | |
| 4B | Lock Washer | T9695-1 | 1 | x | | | | | | | | |
| 4C | #10-24 Hex Nut | NSS | 1 | x | | | | | | | | |
| 6A | Plug Transformer & Lead (with Polarity Switch & Pocket Amptrrol) (optional) | S19927 | 1 | x | | | | | | | | |
| 6B | Self Tapping Screw | S8025-65 | 2 | x | | | | | | | | |
| 7A | Output terminal Assembly | AM2464-1 | 2 | x | | | | | | | | |
| 7B | Self Tapping Screw | AS1733-3Z | 4 | x | | | | | | | | |
| 7C | Nut (R3R models) | T3960 | 2 | x | | | | | | | | |
| 9A | Marker (to work) (R3R models) (w/Polarity Switch) | T3962 | 1 | x | | | | | | | | |
| 9B | Self Tapping Screw | S8025-60 | 2 | x | | | | | | | | |
| 10A | Marker (Electrode) (R3R models) (w/Polarity Switch) | T3961 | 1 | x | | | | | | | | |
| 10B | Self Tapping Screw | S8025-60 | 2 | x | | | | | | | | |
| 11A | PC Board Snubber | AM2538-[] | 1 | x | | | | | | | | |
| 11B | Self Tapping Screw | | 4 | x | | | | | | | | |
| 12A | Air Deflector (R3R 600-I) | S17113 | 1 | x | | | | | | | | |
| 12B | Self Tapping Screw | AS1733-3Z | 2 | x | | | | | | | | |
| 13 | Bushing | T12380-2 | 1 | x | | | | | | | | |
| 14 | Ground Decal | T13260-4 | 1 | x | | | | | | | | |
| 15A | Lead Insulating Panel | S14585-2 | 1 | x | | | | | | | | |
| 15B | Self Taping Screw | | 2 | x | | | | | | | | |
| 16A | 1/2-13 x .750 Hex head Cap Screw | NSS | 2 | x | | | | | | | | |
| 16B | Lock Washer 1/2" | NSS | 2 | x | | | | | | | | |
| 16C | Plain Washer 1/2" | NSS | 2 | x | | | | | | | | |
| <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note: when ordering new printed circuit boards indicate the dash number [] of the "Old" board that is to be replaced. This will aid Lincoln in supplying the correct and latest board along with any necessary jumpers or adapters. The dash number brackets [] have purposely been left blank so as to eliminate errors, confusion and updates.</p> </div> | | | | | | | | | | | | |

Indicates a change this printing.
 * Items not illustrated.

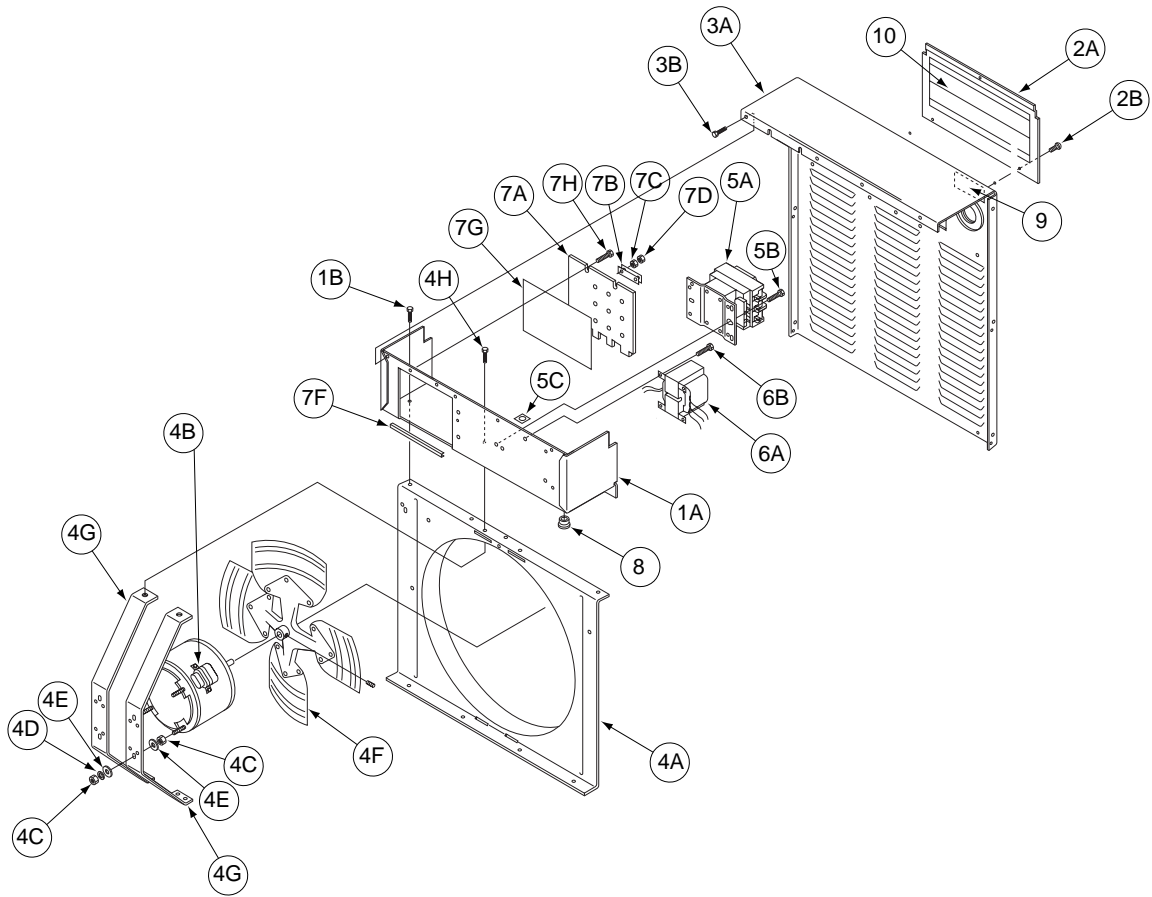
Use only the parts marked "X" in the column under the heading number called for in the model index page.

Recommended Spare Parts are highlighted in bold

| ITEM | DESCRIPTION | PART NO. | QTY. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|------|---|------------------|------|---|---|---|---|---|---|---|---|---|
| | 3 Phase bridge Assembly includes: Items 1 through 20b 500-I & 600-I) | L6849 | 1 | x | | | | | | | | |
| 1 | Heat Sink (DC negative) | L5824 | 1 | x | | | | | | | | |
| 2A | Carriage Bolt | T11827-31 | 4 | x | | | | | | | | |
| 2B | Insulating Bushing | S16860 | 8 | x | | | | | | | | |
| 2C | Insulating Tape | T7028-170 | 4 | x | | | | | | | | |
| 2D | Plain Washer 1/4" | | 4 | x | | | | | | | | |
| 2E | 1/4-20 hex Nut | | 4 | x | | | | | | | | |
| 3A | 5/16-18 x 1.00 Hex Head Cap Screw | | 1 | x | | | | | | | | |
| 3B | Plain Washer 5/16" | | 2 | x | | | | | | | | |
| 3C | Lock Washer 5/16" | | 1 | x | | | | | | | | |
| 3D | 5/16-18 Hex Nut | | 1 | x | | | | | | | | |
| 4 | Cathode heat Sink | AM2435-1 | 2 | x | | | | | | | | |
| 5A | Terminal Plate | T14211 | 1 | x | | | | | | | | |
| 5B | Self Tapping Screw | S8025-62 | 2 | x | | | | | | | | |
| 6A | Shunt Strap | S11109-6 | 1 | x | | | | | | | | |
| 6B | 5/16-18 x 1.25 Hex Head Cap Screw | | 1 | x | | | | | | | | |
| 6C | Plain Washer 5/16" | | 2 | x | | | | | | | | |
| 6D | Lock Washer 5/16" | | 1 | x | | | | | | | | |
| 6E | 5/16-18 hex Nut | | 1 | x | | | | | | | | |
| 11A | Support Bracket | M13430 | 2 | x | | | | | | | | |
| 11B | Thread Cutting Screw (not shown) | | 8 | x | | | | | | | | |
| 12 | Positive Heat Sink Lead | T9706-30 | 1 | x | | | | | | | | |
| 13 | Cathode Heat Sink | AM2435-1 | 1 | x | | | | | | | | |
| 14A | 5/16-18 x 1.25 Hex Head Cap Screw | | 3 | x | | | | | | | | |
| 14B | Plain Washer 5/16" | | 6 | x | | | | | | | | |
| 14C | Lock Washer 5/16" | | 3 | x | | | | | | | | |
| 14D | 5/16-18 Hex Nut | | 3 | x | | | | | | | | |
| 15A | Rectifier Jumper Lead | | 3 | x | | | | | | | | |
| 15B | 5/16-18 x 1.25 Hex Head Cap Screw | | 3 | x | | | | | | | | |
| 15C | Plain Washer | S9262-121 | 3 | x | | | | | | | | |
| 15D | Lock Washer | | 3 | x | | | | | | | | |
| 15E | 5/16-18 Hex Nut | | 3 | x | | | | | | | | |
| 16A | 5/16-18 x 1.00 Hex Head Cap Screw | | 2 | x | | | | | | | | |
| 16B | Plain Washer 5/16" | | 4 | x | | | | | | | | |
| 16C | Lock Washer 5/16" | | 2 | x | | | | | | | | |
| 16D | 5/16-18 Hex Nut | | 2 | x | | | | | | | | |
| 17 | SCR | M12283-10 | 3 | x | | | | | | | | |
| 18A | 5/16- x 1.25 Hex Head Cap Screw (not shown) | | 1 | x | | | | | | | | |
| 18A | 5/16-18 x 1.25 Hex Head Cap Screw (not shown) | | 1 | x | | | | | | | | |
| 18B | Plain Washer 5/16" (not shown) | | 2 | x | | | | | | | | |
| 18C | Lock Washer 5/16" (not shown) | | 1 | x | | | | | | | | |
| 18D | 5/16-18 hex Nut 5/16" (not shown) | | 1 | x | | | | | | | | |
| 19A | Heat Sink | M12314-3 | 3 | x | | | | | | | | |
| 19B | SCR Spring | S14724A | 3 | x | x | | | | | | | |
| 19C | SCR Clamp | S14724-B | 3 | x | x | | | | | | | |
| 19D | Socket Head Cap Screw | T9447-44 | 6 | x | x | | | | | | | |
| 19E | Plain Washer | S9262-98 | 6 | x | x | | | | | | | |
| 19F | 1/4-20 Hex Nut | | 6 | x | x | | | | | | | |
| 20A | Rectifier Diode | M9661-31 | 4 | x | x | | | | | | | |
| 20B | Spring Washer | T12735 | 4 | x | x | | | | | | | |
| 21 | Bridge Mounting Bracket | M14173 | 2 | x | x | | | | | | | |
| 22A | Shunt (R3R 500-I) | S6602-25 | 1 | - | x | | | | | | | |
| 22A | Shunt (R3R 600-I) | S6602-20 | 1 | - | x | | | | | | | |
| 22B | 3/8-16 x 1.00 Hex Head Cap Screw | | 1 | x | x | | | | | | | |
| 22C | Lock Washer 3/8" | | 1 | x | x | | | | | | | |
| 22D | 3/8-16 Hex Nut | | 1 | x | x | | | | | | | |
| 22E | Sems Screw | T10082-3 | 2 | x | x | | | | | | | |
| 22F | #10-24 Hex Nut | | 2 | x | x | | | | | | | |
| 23A | Thread Form Screw | S9225-47 | 2 | x | x | | | | | | | |
| 23B | Spacer | T7028-113 | 2 | x | x | | | | | | | |
| 24 | Brace | T8477-35 | 2 | x | x | | | | | | | |

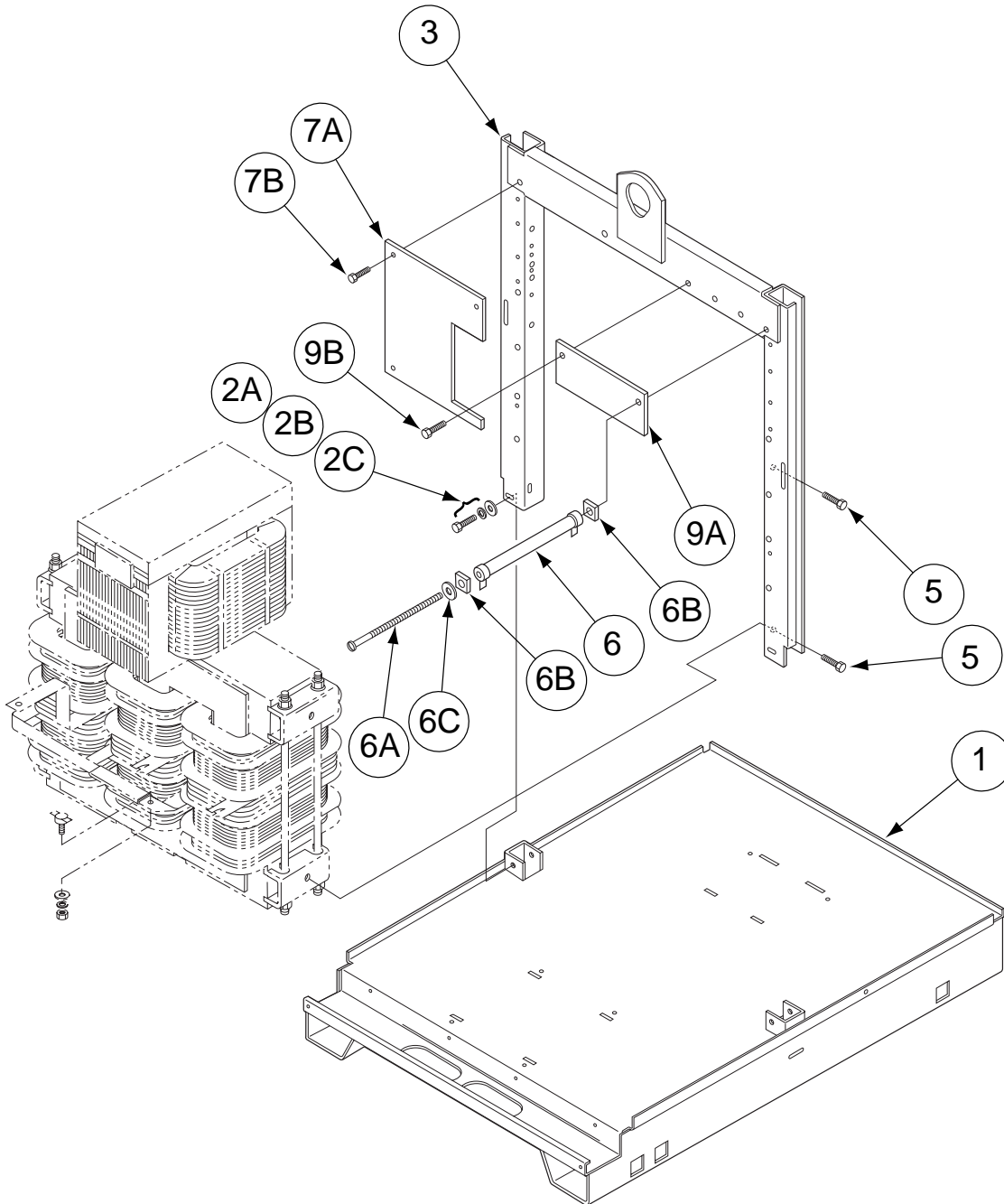
Input Box & Fan Assembly

Operative: AP-217-F
Supersedes: Dec 2003
May 2003



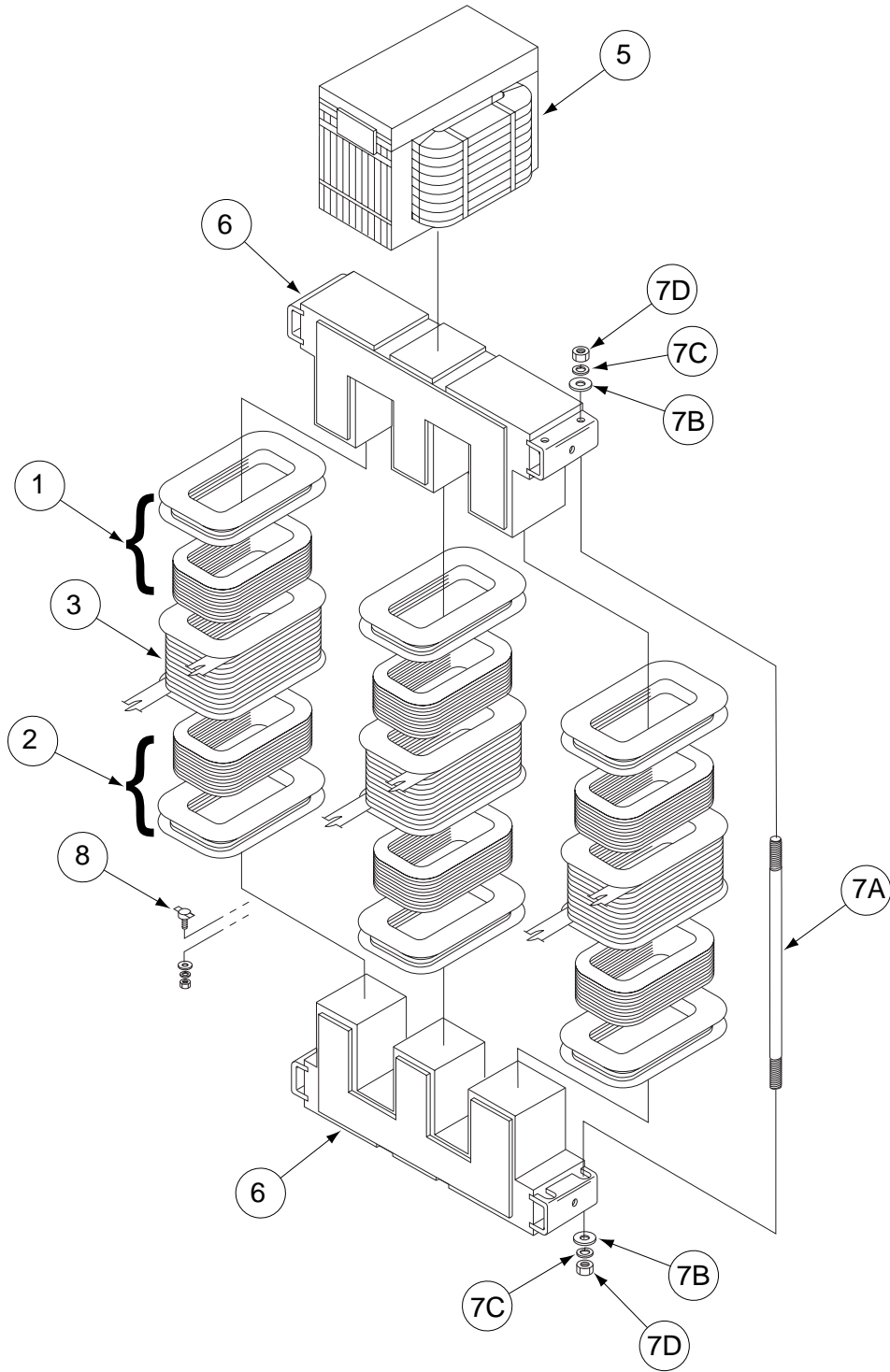
Centre Assembly

Operative: AP-217-G
Supersedes: May 2003
NEW



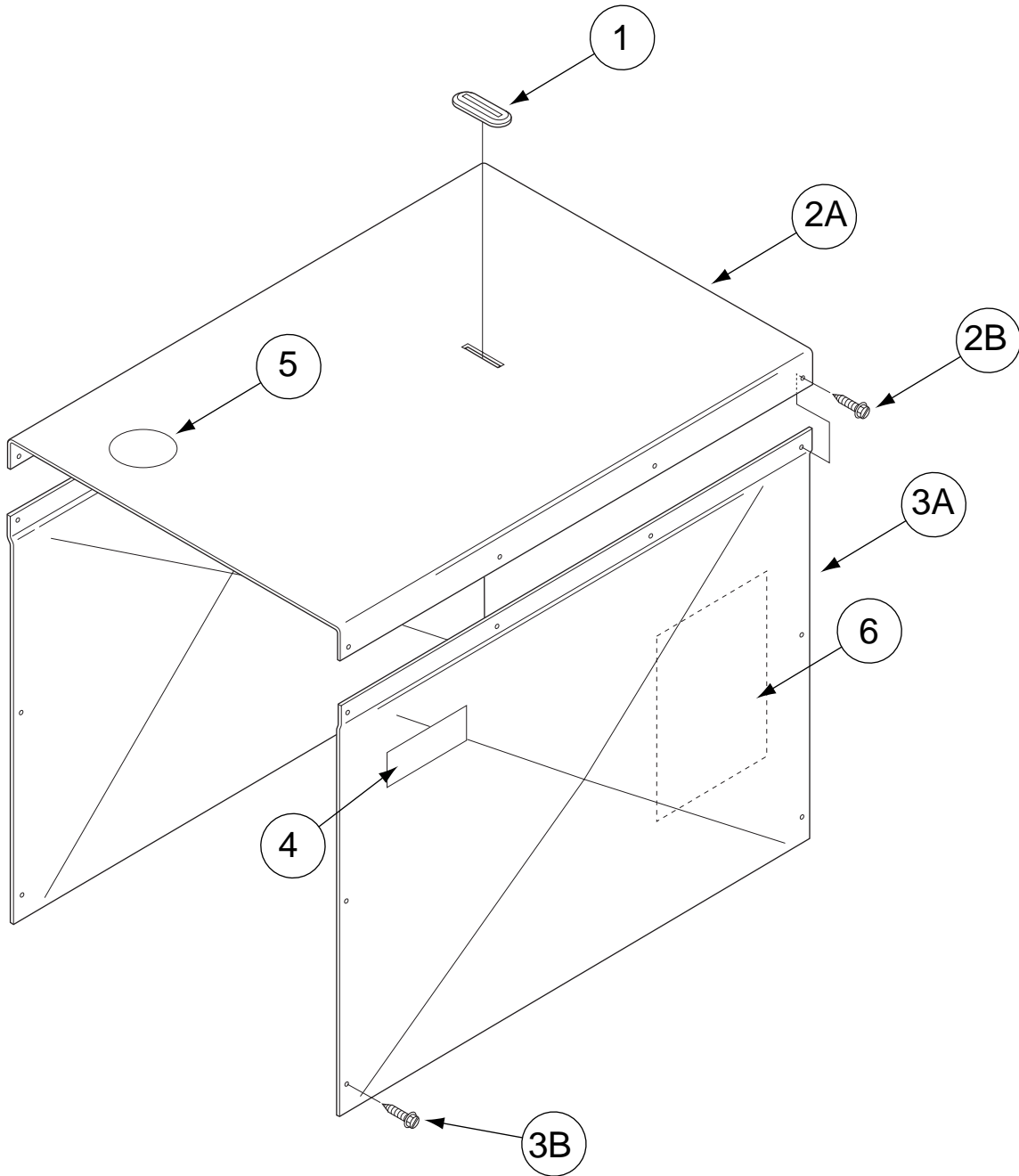
Transformer Assembly

Operative: AP-217-H
Supersedes: May 2003
NEW



Cover Assembly

Operative: AP-217-J
Supersedes: May 2003
NEW



Wiring Diagram

LEGEND

- D5 } POCKET AMPTRON SENSING BRIDGE
- D6 } POCKET AMPTRON SENSING BRIDGE
- D7 } POCKET AMPTRON SENSING BRIDGE
- L1 DC OUTPUT FILTER
- R1 10K Ω POT., OUTPUT CONTROL
- R2 10K Ω POT., ARC FORCE CONTROL
- R3 40 Ω 100W RESISTOR
- R4 1M Ω POCKET AMPTRON SENSING RESISTOR

- SW1 POWER SWITCH
- SW2 MACHINE / REMOTE SWITCH
- SW3 DIAL SELECTOR SWITCH
- SW4 OPTIONAL POLARITY SWITCH

- SCR1 - D1 } DCR AND DIODE
- SCR2 - D2 } BRIDGE RECTIFIER
- SCR3 - D3 } BRIDGE RECTIFIER
- D4 } BRIDGE RECTIFIER

1CR INPUT CONTACTOR

(DASHED ITEMS ON WIRING DIAGRAM ARE OPTIONAL)

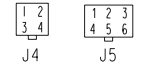
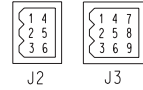
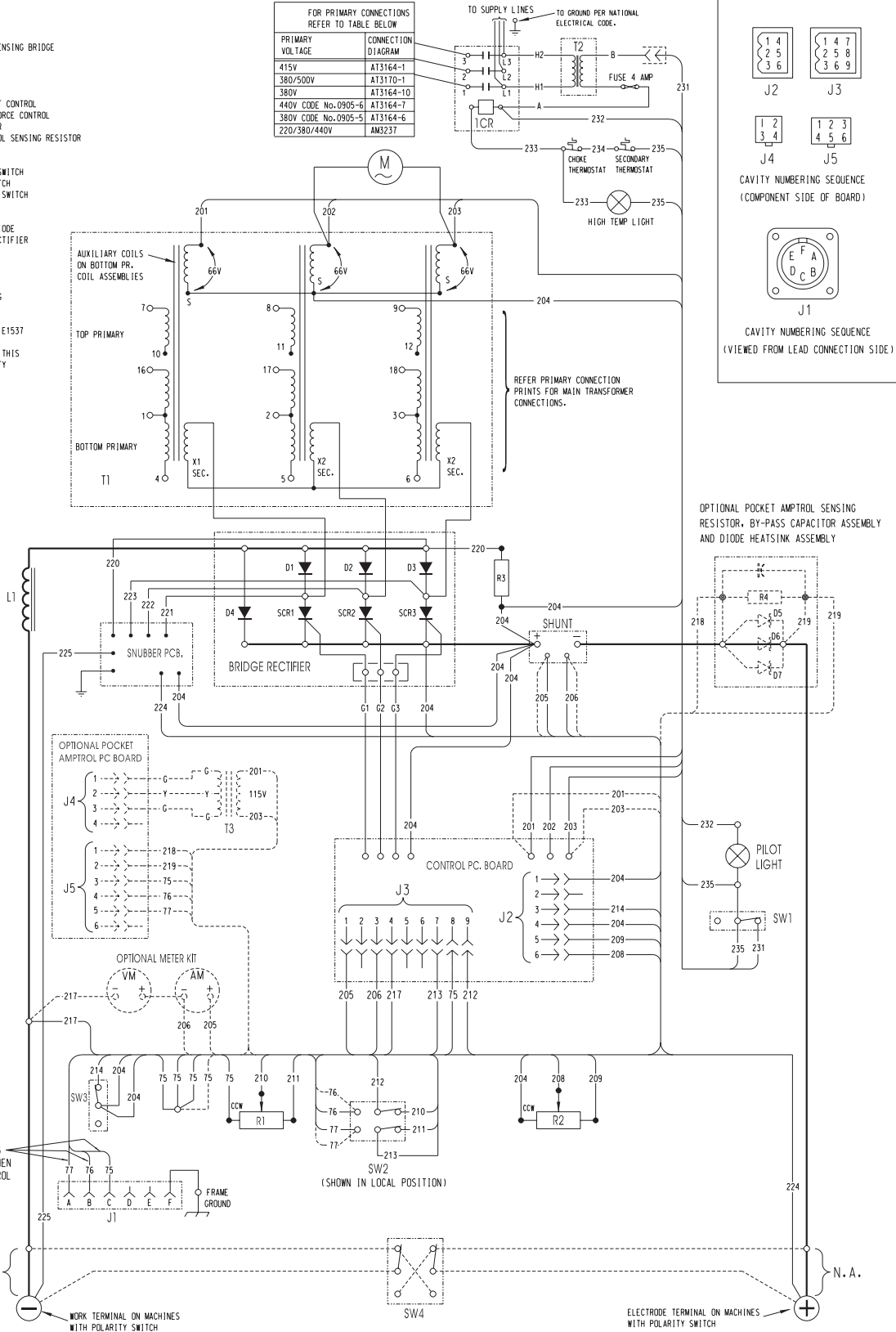
ELECTRICAL SYMBOLS PER E1537

N.A. NO CONNECTIONS AT THIS POINT WHEN POLARITY SWITCH IS INSTALLED

FOR PRIMARY CONNECTIONS REFER TO TABLE BELOW

| PRIMARY VOLTAGE | CONNECTION DIAGRAM |
|---------------------|--------------------|
| 415V | AT3164-1 |
| 380/500V | AT3170-1 |
| 380V | AT3164-10 |
| 440V CODE No.0905-6 | AT3164-7 |
| 380V CODE No.0905-5 | AT3164-6 |
| 220/380/440V | AM3237 |

TO SUPPLY LINES TO GROUND PER NATIONAL ELECTRICAL CODE.



CAVITY NUMBERING SEQUENCE (COMPONENT SIDE OF BOARD)



CAVITY NUMBERING SEQUENCE (VIEWED FROM LEAD CONNECTION SIDE)

OPTIONAL POCKET AMPTRON SENSING RESISTOR, BY-PASS CAPACITOR ASSEMBLY AND DIODE HEATSINK ASSEMBLY

CONNECTOR AND THESE 3 LEADS ARE NOT USED WHEN OPTIONAL POCKET AMPTRON IS PROVIDED

WORK TERMINAL ON MACHINES WITH POLARITY SWITCH

ELECTRODE TERMINAL ON MACHINES WITH POLARITY SWITCH

Ref: AL2405-1
12898M

Note: This diagram is for reference only. It may not be accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosed panels.

Wiring Diagram

LEGEND

- L1 DC OUTPUT FILTER
- R1 10KΩ POT., OUTPUT CONTROL
- R2 10KΩ POT., ARC FORCE CONTROL
- R3 40Ω 100W RESISTOR
- R4 1MΩ GAS AFTERFLOW CONTROL

- SW1 POWER SWITCH
- SW2 MACHINE / REMOTE SWITCH
- SW3 DIAL SELECTOR SWITCH
- SW4 OPTIONAL POLARITY SWITCH
- SW5 TIG / STICK

- SCR1-3 SCR AND DIODE
- D1-4 BRIDGE RECTIFIER

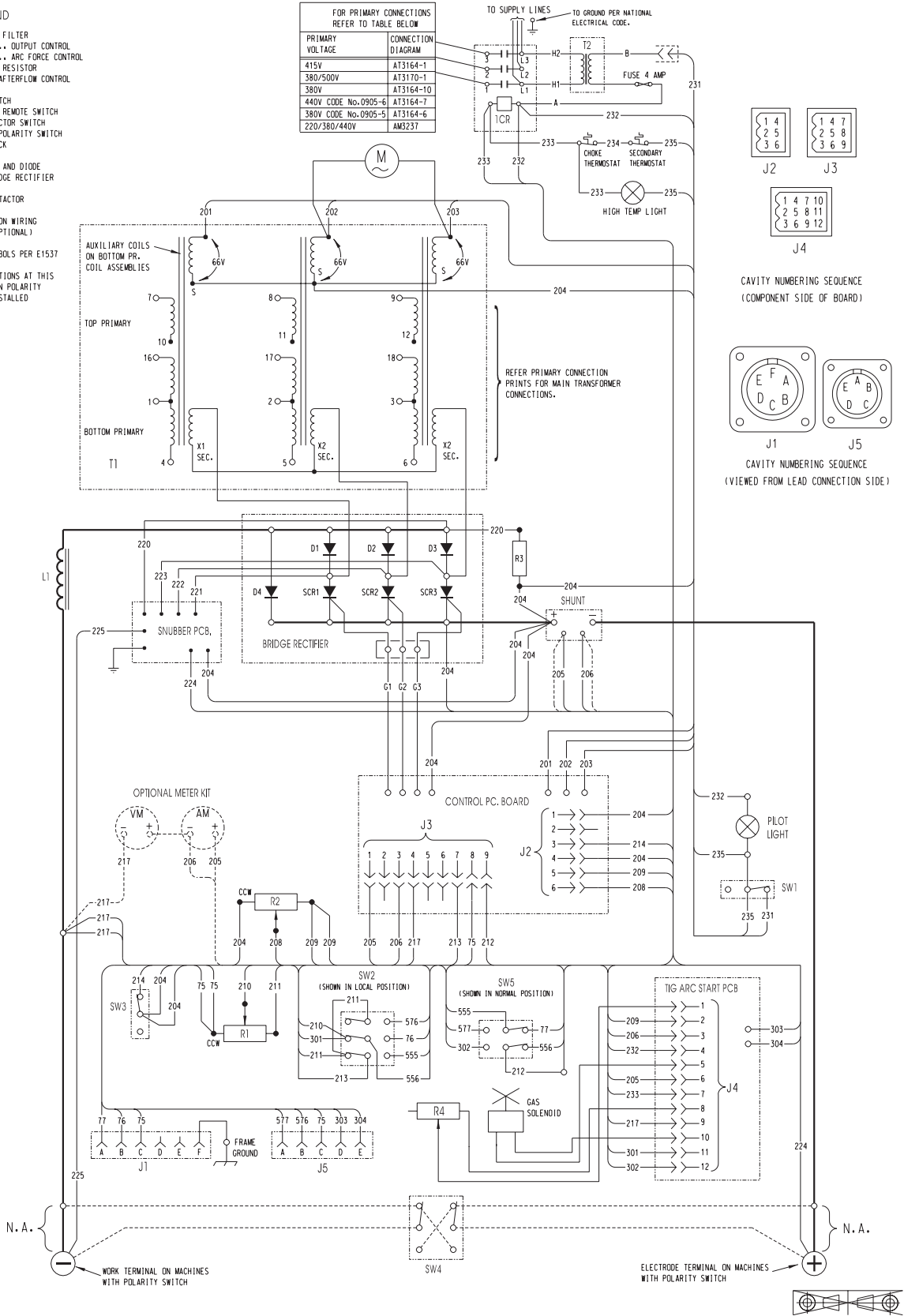
ICR INPUT CONTACTOR

(DASHED ITEMS ON WIRING DIAGRAM ARE OPTIONAL)

ELECTRICAL SYMBOLS PER E1537

N.A. NO CONNECTIONS AT THIS POINT WHEN POLARITY SWITCH INSTALLED

| FOR PRIMARY CONNECTIONS REFER TO TABLE BELOW | |
|--|--------------------|
| PRIMARY VOLTAGE | CONNECTION DIAGRAM |
| 415V | AT3164-1 |
| 380/500V | AT3170-1 |
| 380V | AT3164-10 |
| 440V CODE No.0905-6 | AT3164-7 |
| 380V CODE No.0905-5 | AT3164-6 |
| 220/380/440V | AM3237 |



Ref: AL2405-2
12898M

Note: This diagram is for reference only. It may not be accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosed panels.