

## 7 Circuit Diagrams

### 7.1 General

The heater Air Top 3500 and Air Top 5000 may be operated with the control element (rated value setting/switch) or with a combination timer.

The circuit diagrams (Fig. 702 to 706) show possible 12 V or 24 V circuits with:

- control element
- combination timer
- combination timer and battery switch
- control element for ADR
- ADR operation for vehicles without secondary drive

Fig. 701 shows the control unit pin assignment.

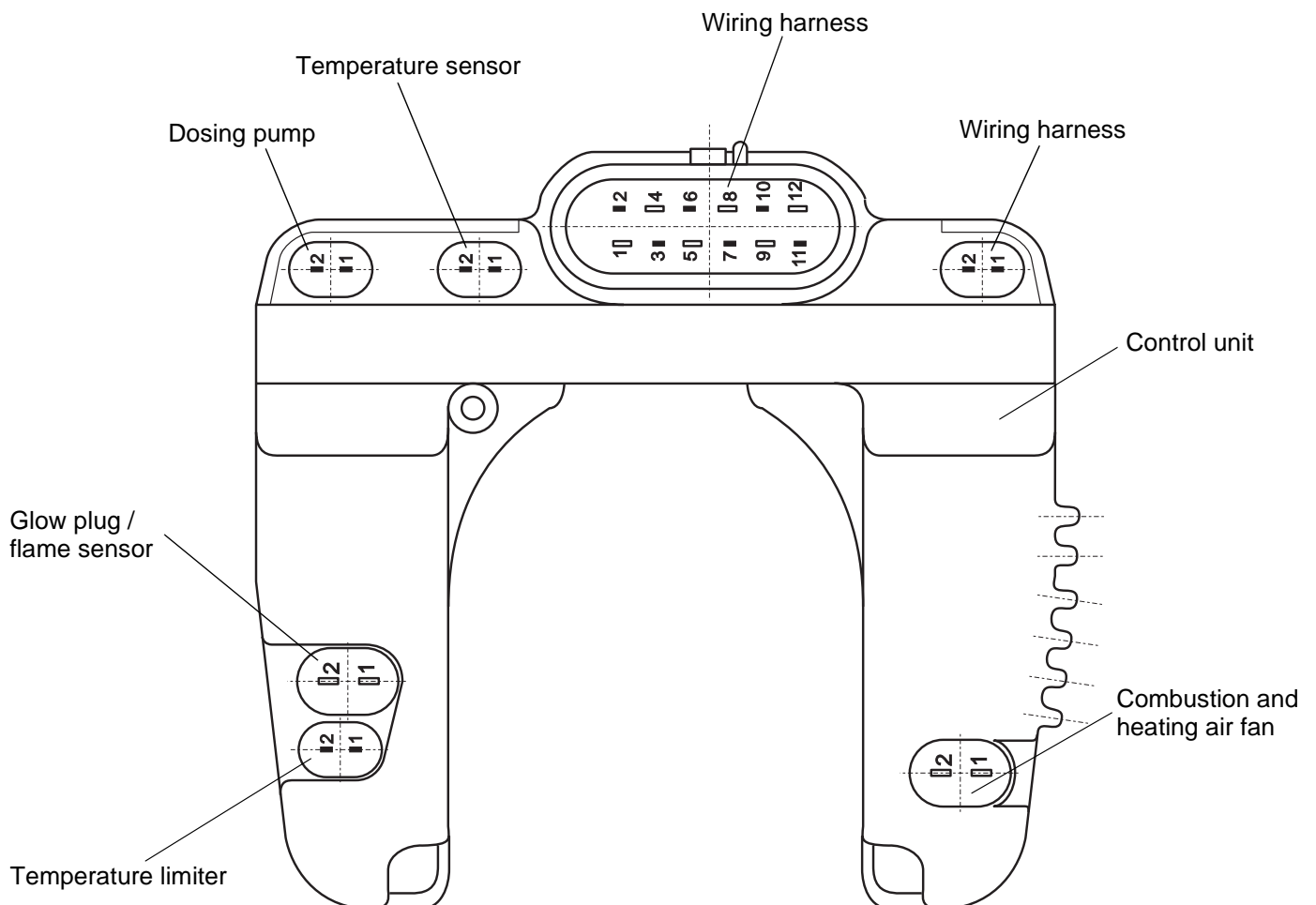
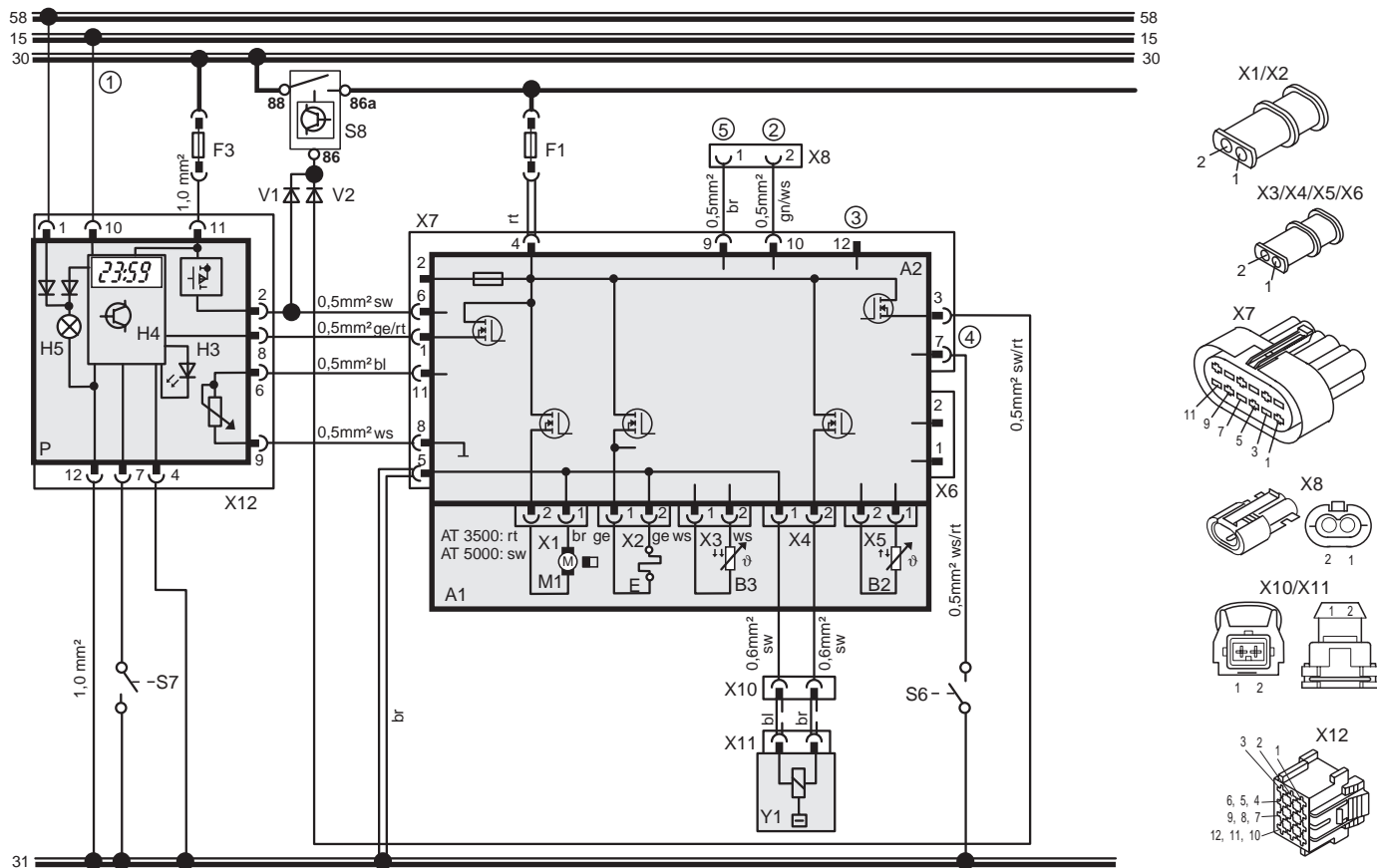


Fig. 701 Control Unit Pin Assignment, Air Top 3500/5000







- ① With plus from terminal (15/75) to connection 10:  
continuous operation in instant heating as long as ignition is on  
Without plus to connection 10:  
heating time programmable as required (10 min to 120 min),  
default setting 120 min
- ② Diagnosis line K
- ③ Diagnosis line L
- ④ Input pin (pin 7/connector X7), wire colour on wiring harness: ws/rt):  
"ventilate" (fan speed is dependent on control element position)
- ⑤ CO<sub>2</sub> adjustment

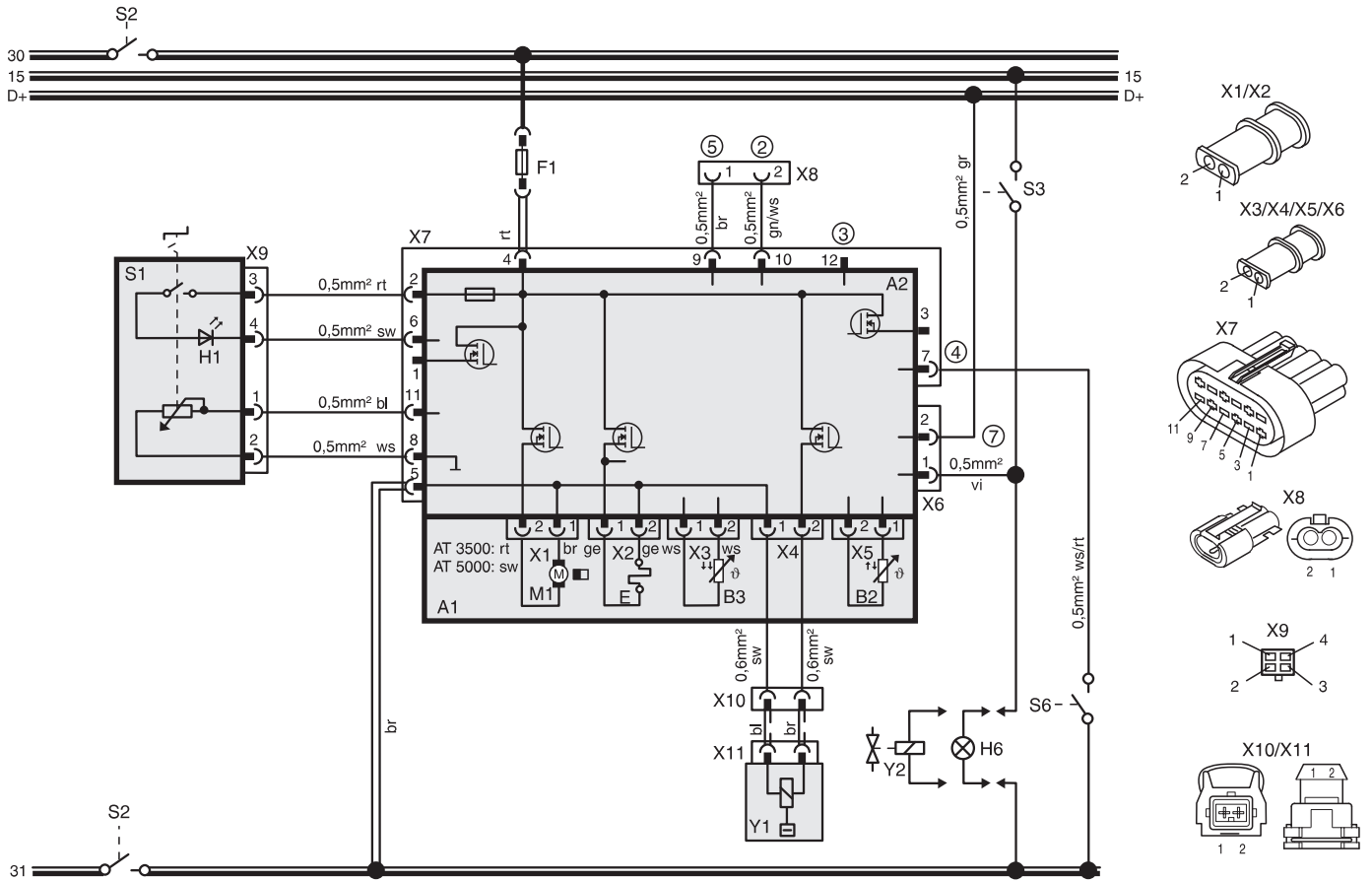
| Wire Gauges |                      |                     |
|-------------|----------------------|---------------------|
|             | < 7.5 m              | 7.5 - 15 m          |
|             | 0.75 mm <sup>2</sup> | 1.5 mm <sup>2</sup> |
|             | 1.0 mm <sup>2</sup>  | 1.5 mm <sup>2</sup> |
|             | 1.5 mm <sup>2</sup>  | 2.5 mm <sup>2</sup> |
|             | 2.5 mm <sup>2</sup>  | 4.0 mm <sup>2</sup> |
|             | 4.0 mm <sup>2</sup>  | 6.0 mm <sup>2</sup> |

| Wire Colours |        |
|--------------|--------|
| bl           | blue   |
| br           | brown  |
| ge           | yellow |
| gn           | green  |
| gr           | grey   |
| or           | orange |
| rt           | red    |
| sw           | black  |
| vi           | violet |
| ws           | white  |

| Item | Nomenclature                             | Remark  |
|------|--|---|
| A1   | Heater                                   | Air Top 3500/5000   |
| A2   | Control unit                             |   |
| B2   | Temperature sensor                       |   |
| B3   | Temperature limiter                      | Overheat protection   |
| E    | Glow plug / flame sensor                 |   |
| F1   | Fuse 24V 15A / 12V 20A                   | Flat fuse SAE J 1284  |
| F3   | Fuse max. 15A                            | Flat fuse SAE J 1284  |
| H3   | LED red (in item P)                      | Instant heat switch illumination,<br>standby indication,<br>operating indicator light |
| H4   | Heating symbol in display<br>(in item P) | Operating indication  |
| H5   | Lights (in item P)                       | Display and push button switch<br>illumination  |
| M1   | Motor                                    | Combustion and heating air fan  |
| P    | Combination timer (1631)                 | Timer and rated value transmitter   |
| S6   | Switch                                   | Ventilate   |
| S7   | Push button switch                       | Instant heat switch remote<br>control   |
| S8   | Battery switch                           |   |

| Item | Nomenclature       | Remark            |
|------|--------------------|-------------------|
| V1   | Diode              |                   |
| V2   | Diode              |                   |
| X1   | Connection 2-pole  | on item A2 (ST B) |
| X2   | Connection 2-pole  | on item A2 (ST V) |
| X3   | Connection 2-pole  | on item A2 (ST U) |
| X4   | Connection 2-pole  | on item A2 (ST Z) |
| X5   | Connection 2-pole  | on item A2 (ST Y) |
| X6   | Connection 2-pole  | on item A2 (ST X) |
| X7   | Connection 12-pole | on item A2 (ST 1) |
| X8   | Connection 2-pole  |                   |
| X10  | Connection 2-pole  |                   |
| X11  | Connection 2-pole  | on item Y1        |
| X12  | Connection 12-pole | on item P         |
| Y1   | Dosing pump        |                   |
|      |                    |                   |
|      |                    |                   |
|      |                    |                   |
|      |                    |                   |

Fig. 704 Automatic Switching Circuit Air Top 3500/5000, 12 V/24 V with Combination Timer and Battery Switch



- ② Diagnosis line K
- ③ Diagnosis line L
- ④ Input pin (pin 7/connector X7), wire colour on wiring harness: ws/rt: "ventilate" (fan speed is dependent on control element position)
- ⑤ CO<sub>2</sub> adjustment
- ⑦ **NOTE**  
Grey and violet wires required for ADR function

| Wire Gauges |                      |                     |
|-------------|----------------------|---------------------|
|             | < 7.5 m              | 7.5 - 15 m          |
| —           | 0.75 mm <sup>2</sup> | 1.5 mm <sup>2</sup> |
| ==          | 1.0 mm <sup>2</sup>  | 1.5 mm <sup>2</sup> |
| ===         | 1.5 mm <sup>2</sup>  | 2.5 mm <sup>2</sup> |
| ====        | 2.5 mm <sup>2</sup>  | 4.0 mm <sup>2</sup> |
| =====       | 4.0 mm <sup>2</sup>  | 6.0 mm <sup>2</sup> |

| Wire Colours |        |
|--------------|--------|
| bl           | blue   |
| br           | brown  |
| ge           | yellow |
| gn           | green  |
| gr           | grey   |
| or           | orange |
| rt           | red    |
| sw           | black  |
| vi           | violet |
| ws           | white  |

| Item | Nomenclature                   | Remark  |
|------|--------------------------------|---|
| A1   | Heater                         | Air Top 3500/5000                               |
| A2   | Control unit                   |   |
| B2   | Temperature sensor             |   |
| B3   | Temperature limiter            | Overheat protection                             |
| E    | Glow plug / flame sensor       |   |
| F1   | Fuse 24V 15A / 12V 20A         | Flat fuse SAE J 1284                            |
| H1   | LED green (in item S1)         | Operating indicator light                       |
| H6   | Light (min. 1.2W)              | Operating indicator light conveyor installation |
| M1   | Motor                          | Combustion and heating air fan                  |
| S1   | Control element                | Rated value transmitter-switch                  |
| S2   | Disconnect switch 1- or 2-pole | Emergency off switch                            |
| S3   | Switch                         | On or for conveyor installation                 |
| S6   | Switch                         | Boost or Ventilate                              |
| X1   | Connection 2-pole              | on item A2 (ST B)                               |
| X2   | Connection 2-pole              | on item A2 (ST V)                               |
| X3   | Connection 2-pole              | on item A2 (ST U)                               |

| Item | Nomenclature       | Remark            |
|------|--------------------|-------------------|
| X4   | Connection 2-pole  | on item A2 (ST Z) |
| X5   | Connection 2-pole  | on item A2 (ST Y) |
| X6   | Connection 2-pole  | on item A2 (ST X) |
| X7   | Connection 12-pole | on item A2 (ST 1) |
| X8   | Connection 2-pole  |                   |
| X9   | Connection 4-pole  | on item S1        |
| X10  | Connection 2-pole  |                   |
| X11  | Connection 2-pole  | on item Y1        |
| Y1   | Dosing pump        |                   |
| Y2   | Solenoid valve     |                   |

Fig. 705 Automatic Switching Circuit Air Top 3500/5000, 24 V ADR Operation with Control Element

