

Parts Manual  
Injection Unit  
novaG-fill 60  
novaG-fill 60 G

Issue 1.3 13/02/19  
Ref. NR-00005-ENG



*Please carefully read all the technical and safety documents in the Service Manual before installing and starting up this Unit. Special attention must be paid to this information in order to understand how the Unit is used. Its purpose is to enhance user safety and prevent breakdowns caused by incorrect use.*



## Parts Identification

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**INJECTION UNIT MOD. novaG - fill 60**

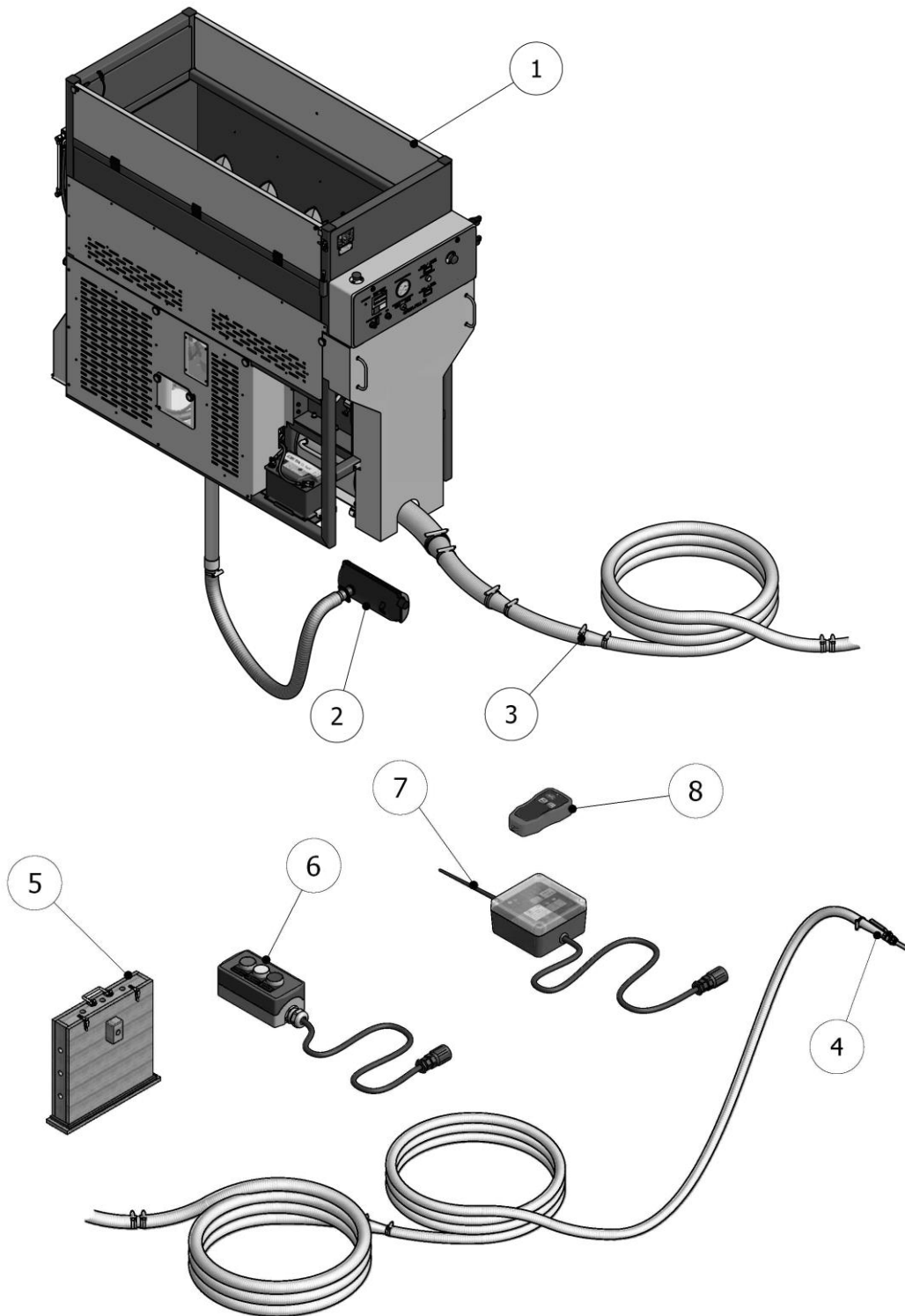


Figure 1. Injection unit model novaG - fill 60



## Parts Identification

**Table 1. Injection Unit Components List  
model novaG - fill 60**

| Pos.  | Description   | Reference      | Amt. |
|-------|---|----------------|------|
| 1     | Machine Unit  | See Table 2    | 1    |
| 2     | Exhaust Unit  | See Table 3    | 1    |
| 3     | Hose Unit   | See Table 4    | 1    |
| 4     | Injection Nozzle  | See Table 5    | 1    |
| 5     | Calibration Box   | MQ-12036-00    | 1    |
| 6     | Control Unit with Cable                                       | EL-00151-07    | 1    |
| 7     | Wireless Control Receiver synchronized                        | EL-00151-06    | 1    |
| 8     | Wireless Control Transmitter synchronized                     | EL-00151-02-NG | 1    |
| 8 (*) | Replacement Wireless Control Transmitter<br>(no synchronized) | EL-00151-03-NG | 1    |

**Table 2. List of Machine References according to Model**

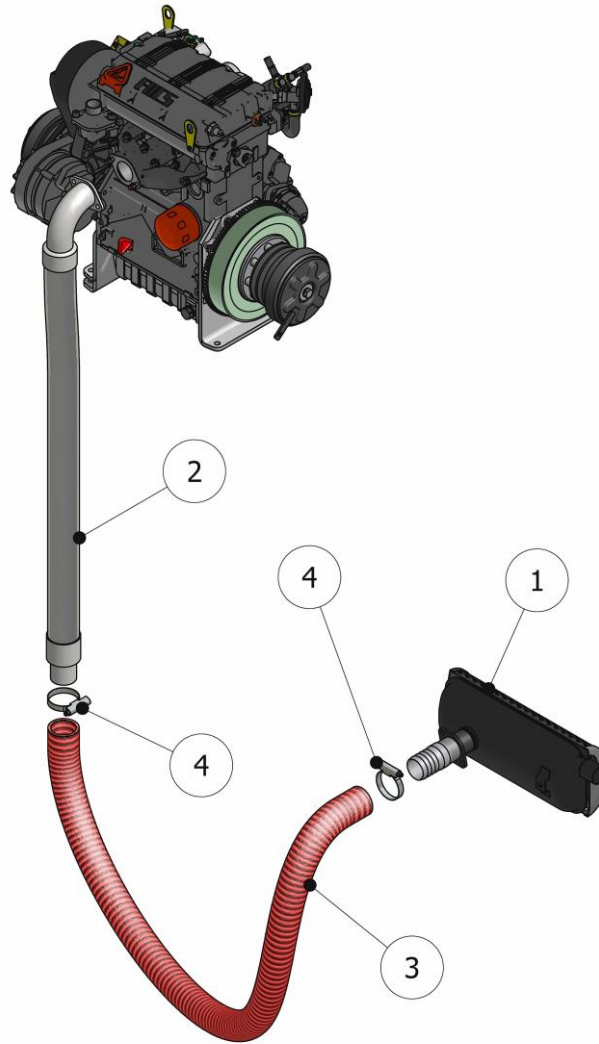
| Reference         | Description                                     |
|-------------------|---|
| novaG – fill 60   | Standard Machine Unit (without Alternator) (DE) |
| novaG – fill 60 G | Special Machine Unit (with Alternator) (DE) (*) |
| novaG – fill 60   | Standard Machine Unit (without Alternator) (NL) |
| novaG – fill 60 G | Special Machine Unit (with Alternator) (NL) (*) |

**Note:**

**(\*) Machines with alternators are manufactured to special order. Please check delivery times with the marketing department.**



**EXHAUST UNIT MOD. novaG - fill 60**



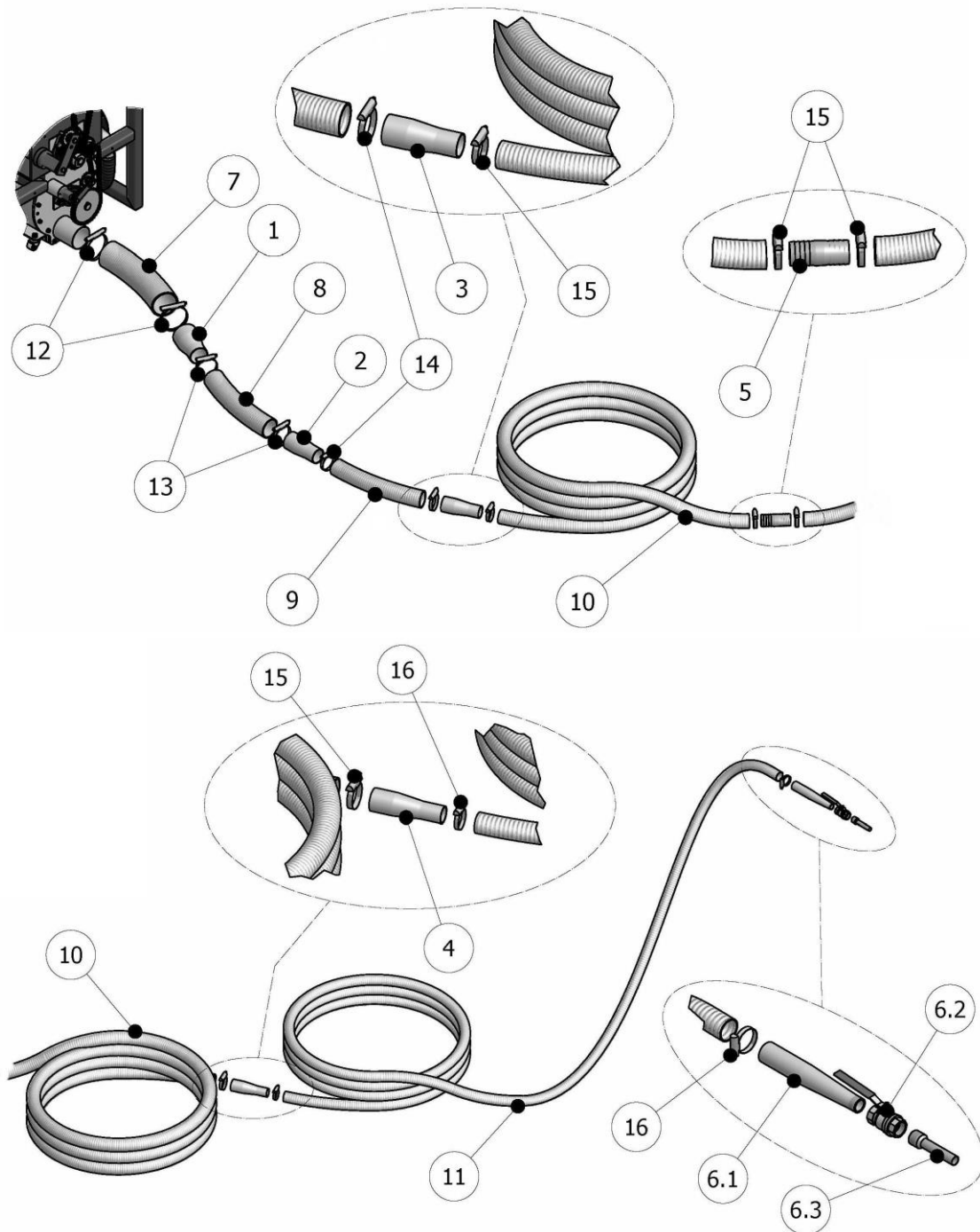
*Figure 2. Exhaust Unit*

*Table 3. Exhaust Unit Components List*

| Pos. | Description           | Reference   | Amt. |
|------|-----------------------|-------------|------|
| 1    | Exhaust Silencer Unit | MQ-12054-00 | 1    |
| 2    | Exhaust Metallic Hose | MA-00149    | 1    |
| 3    | Exhaust Hose          | MA-00136    | 1 m  |
| 4    | Mikalor Flange        | TN-00373    | 2    |



**HOSE UNIT MOD. novaG - fill 60**



**Figure 3. Hose Unit**



## Parts Identification

**Table 4. Hose Unit Components List**

| Pos. | Description           | Reference   | Amt.  |
|------|-----------------------|-------------|-------|
| 1    | 4"-3" Reducer         | MQ-12053-06 | 1     |
| 2    | 3"-2.5" Reducer       | MQ-12053-03 | 1     |
| 3    | 2.5"-2" Reducer       | MQ-12053-04 | 1     |
| 4    | 2"-1.5" Reducer       | MQ-12053-05 | 1     |
| 5    | 2" Coupling           | MQ-12235    | 2     |
| 6    | Injection Nozzle Unit | See Table 5 | (*)   |
| 7    | 4" Hose Section       | MA-00142    | 0.80m |
| 8    | 3" Hose Section       | MA-00141    | 0.80m |
| 9    | 2.5" Hose Section     | MA-00140    | 0.80m |
| 10   | 2" Hose Section       | MA-00138    | 3x15m |
| 11   | 1.5" Hose Section     | MA-00137    | 15m   |
| 12   | Mikalor Flange        | TN-00370    | 2     |
| 13   | Mikalor Flange        | TN-00366    | 2     |
| 14   | Mikalor Flange        | TN-00368    | 2     |
| 15   | Mikalor Flange        | TN-00353    | 6     |
| 16   | Mikalor Flange        | TN-00365    | 2     |

**Note:**

(\*) A nozzle of each size is included with the machine.

On final assembly of the unit, if Ø21.7 and Ø19.7 injection nozzles are used, positions 4, 11 and 16 are not required.

**Table 5. Injection Nozzle Unit Components List**

| Nozzle Ø | Reference   | Pos. 6.1    | Pos. 6.2 | Pos. 6.3    |
|----------|-------------|-------------|----------|-------------|
| 21.7     | MQ-12052-00 | MQ-12038-02 | RA-00078 | MQ-12052-01 |
| 19.7     | MQ-12038-00 | MQ-12038-02 | RA-00078 | MQ-12038-01 |
| 17       | MQ-12039-00 | MQ-12039-02 | RA-00078 | MQ-12039-01 |

**ELECTRIC CONSOLE***Table 6. Electric Console Variants*

| <b>Description</b>                            | <b>Console Unit Ref.</b> | <b>Front Panel Unit Ref.</b> | <b>Front Panel Ref.</b> |
|---|--------------------------|------------------------------|-------------------------|
| Console without Alternator<br>Language ENG/DE | EL-00213-SG-DE-NG        | EL-00220-00-DE-NG            | EL-00220-DE-NG          |
| Console without Alternator<br>Language FRA/NL | EL-00213-SG-NL-NG        | EL-00220-00-NL-NG            | EL-00220-NL-NG          |
| Console with Alternator<br>Language ENG/DE    | EL-00213-CG-DE-NG        | EL-00220-00-DE-NG            | EL-00220-DE-NG          |
| Console with Alternator<br>Language FRA/NL    | EL-00213-CG-NL-NG        | EL-00220-00-NL-NG            | EL-00220-NL-NG          |





Parts Identification

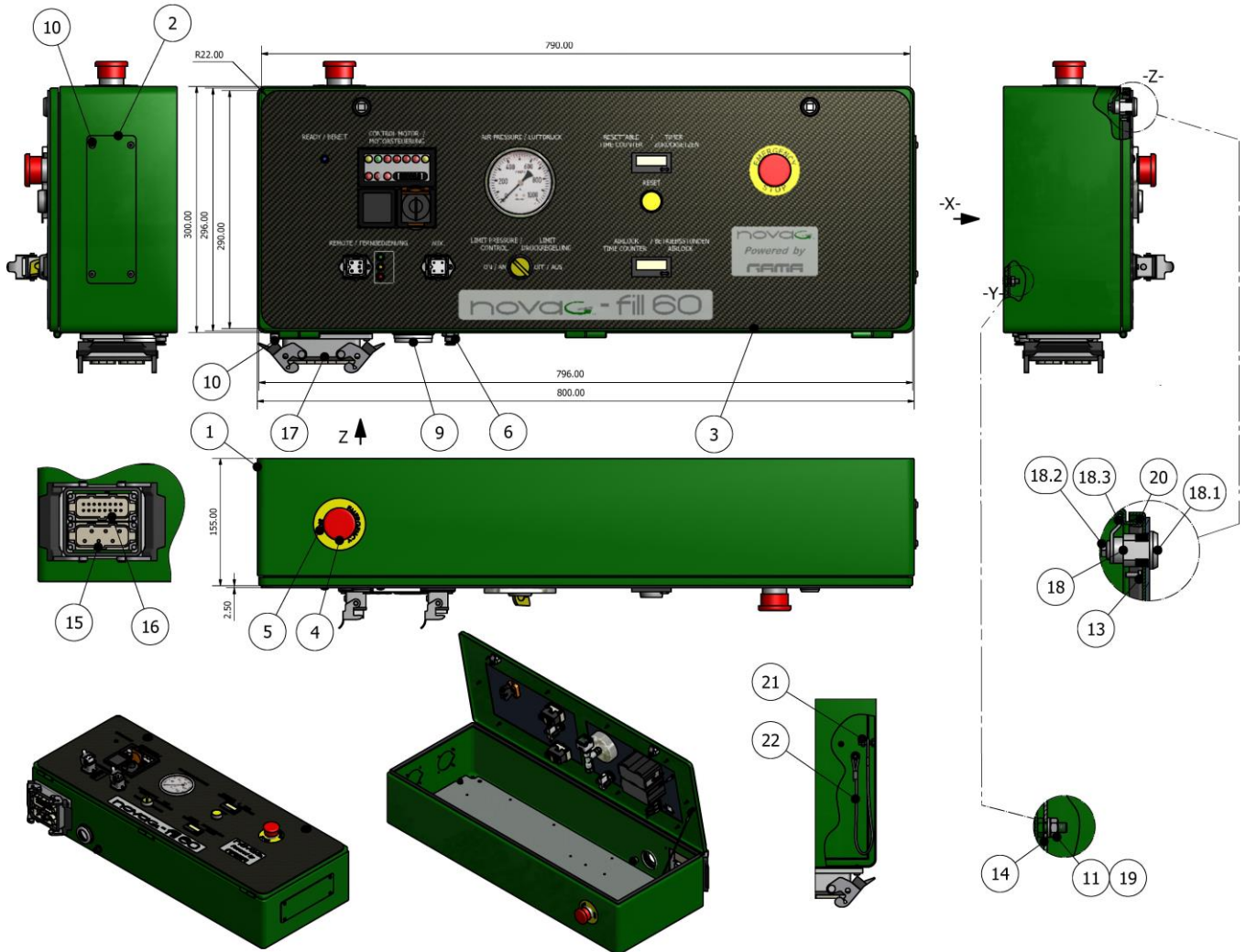


Figure 4. Electric Console, standard model without generator

Table 7. Components List for Electric Console, standard model without generator

| Pos. | Description           | Reference      | Amt. |
|------|-----------------------|----------------|------|
| 1    | Cabinet               | EL-00218-NG    | 1    |
| 2    | Side Cover            | EL-00213-02-NG | 1    |
| 3    | Front Panel Unit      | See Table 6    | 1    |
| 4    | Emergency Button      | EL-00131-00    | 1    |
| 5    | Emergency Button Disc | EL-00131-26    | 1    |
| 6    | Bushing               | RA-00374       | 1    |



**Parts Identification**

| <b>Pos.</b> | <b>Description</b>   | <b>Reference</b> | <b>Amt.</b> |
|-------------|----------------------|------------------|-------------|
| 7           |                      |                  |             |
| 8           |                      |                  |             |
| 9           | Rubber Bushing       | EL-00095-02      | 1           |
| 10          | ULS Bolt             | TN-00239         | 8           |
| 11          | Nut                  | TN-00107         | 4           |
| 12          |                      |                  |             |
| 13          | Nut                  | TN-00182         | 10          |
| 14          | Plate                | EL-00218-02      | 1           |
| 15          | 6-Pin Male Block     | EL-00096-01      | 1           |
| 16          | 16-Pin Male Block    | EL-00096-33      | 1           |
| 17          | Multi-Connector Base | EL-00096-35      | 1           |
| 18          | Lock                 | EL-00034-A       | 2           |
| 19          | Washer               | TN-00024         | 4           |
| 20          | Rubber               | EL-00001-06      | 2 m         |
| 21          | Nut                  | TN-00107         | 2           |
| 22          | Stopper              | MQ-12254         | 1           |



Parts Identification

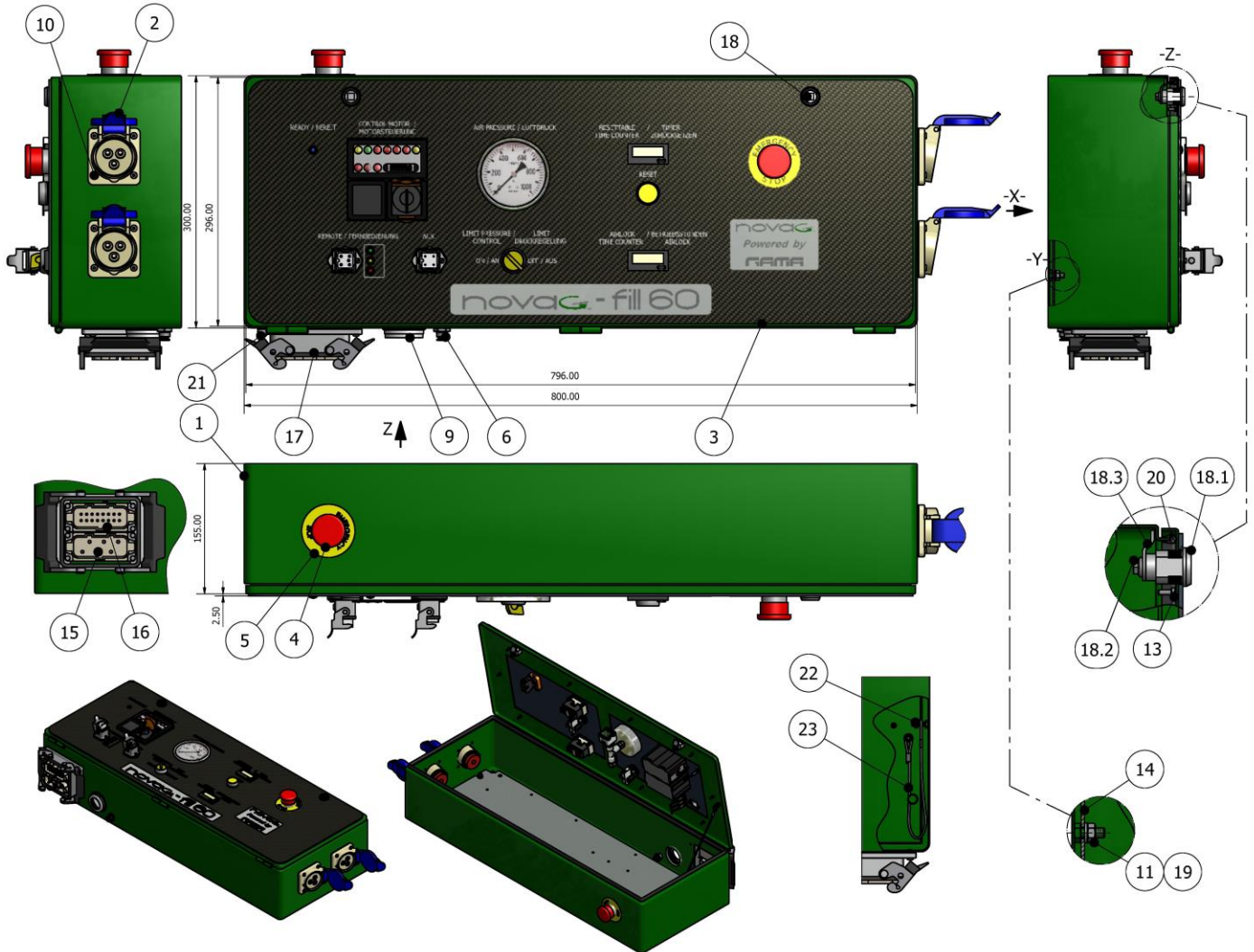


Figure 5. Electric Console, special model with generator

Table 8. Components List for Electric Console, special model with generator

| Pos. | Description           | Reference   | Amt. |
|------|-----------------------|-------------|------|
| 1    | Cabinet               | EL-00218-NG | 1    |
| 2    | Socket                | EL-00166-04 | 2    |
| 3    | Front Panel Unit      | See Table 6 | 1    |
| 4    | Emergency Button      | EL-00131-00 | 1    |
| 5    | Emergency Button Disc | EL-00131-26 | 1    |
| 6    | Bushing               | RA-00374    | 1    |

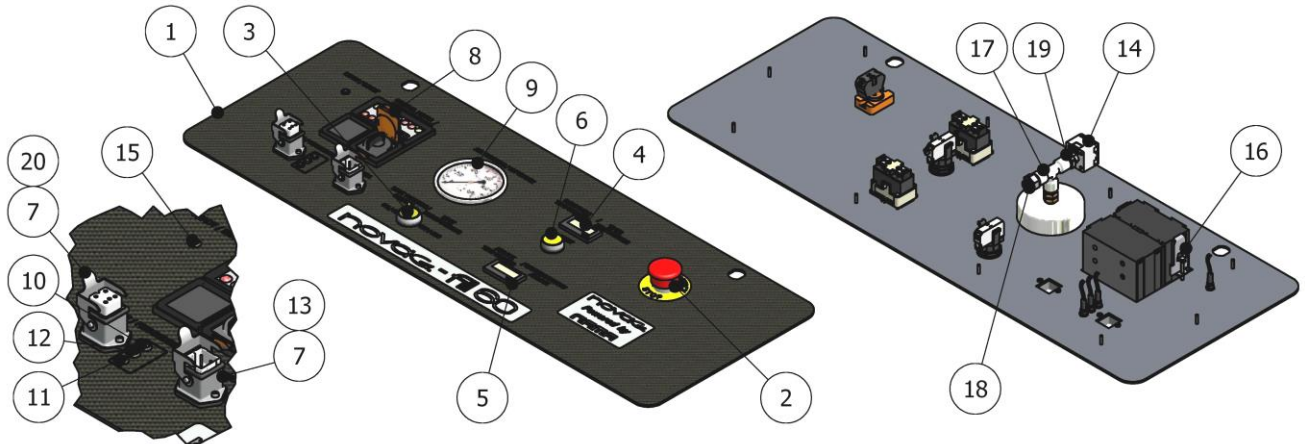


**Parts Identification**

| <b>Pos.</b> | <b>Description</b>   | <b>Reference</b> | <b>Amt.</b> |
|-------------|----------------------|------------------|-------------|
| 7           |                      |                  |             |
| 8           |                      |                  |             |
| 9           | Rubber Bushing       | EL-00095-02      | 1           |
| 10          | Bolt                 | TN-00143         | 8           |
| 11          | Nut                  | TN-00107         | 4           |
| 12          |                      |                  |             |
| 13          | Nut                  | TN-00182         | 10          |
| 14          | Plate                | EL-00218-02      | 1           |
| 15          | 6-Pin Male Block     | EL-00096-31      | 1           |
| 16          | 16-Pin Male Block    | EL-00096-33      | 1           |
| 17          | Multi-Connector Base | EL-00095-35      | 1           |
| 18          | Lock                 | EL-00034-A       | 2           |
| 19          | Washer               | TN-00024         | 4           |
| 20          | Rubber               | EL-00001-06      | 2 m         |
| 21          | Bolt                 | TN-00239         | 4           |
| 22          | Nut                  | TN-00107         | 2           |
| 23          | Stopper              | MQ-12254         | 1           |



Parts Identification

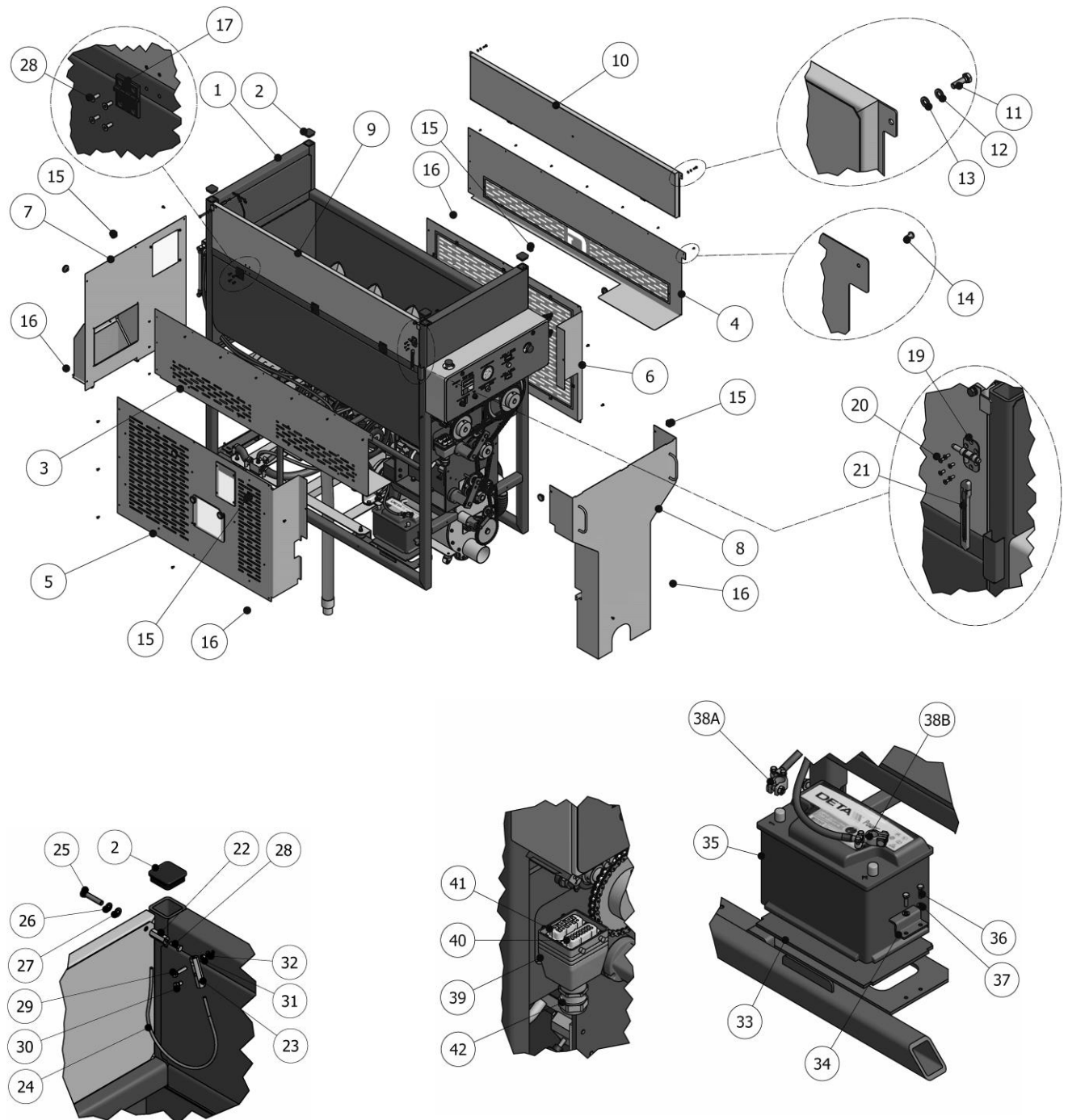


**Table 9. Front Panel Unit Components List**

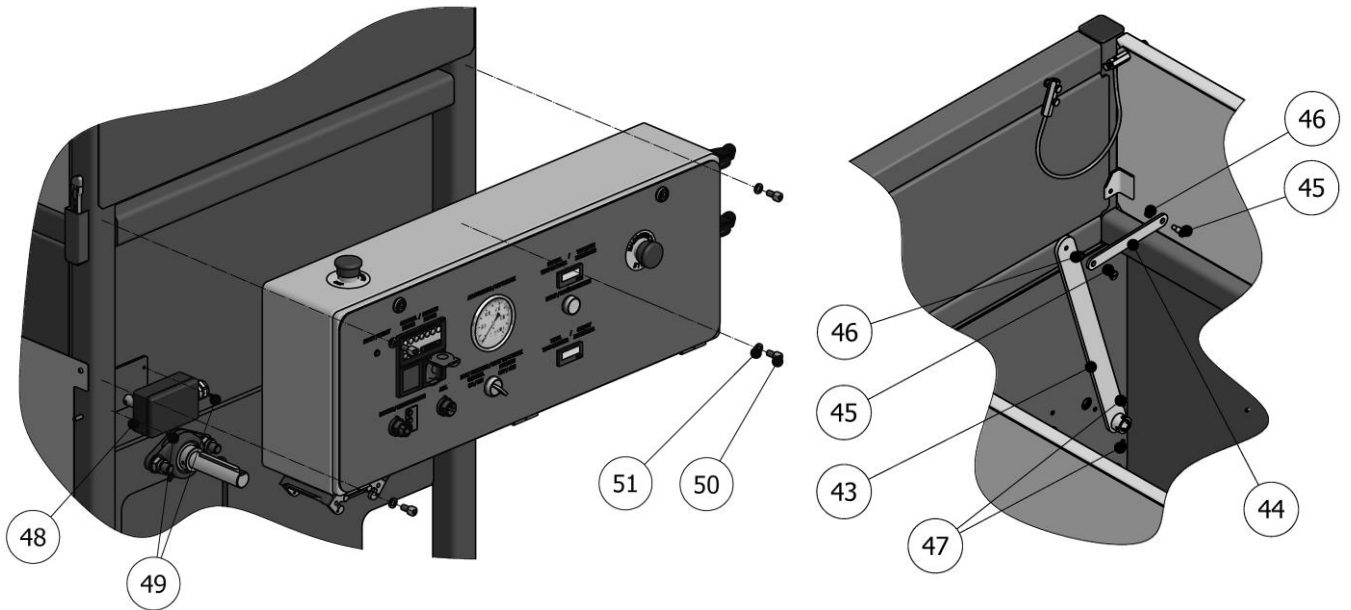
| Pos. | Description                | Reference   | Amt. |
|------|----------------------------|-------------|------|
| 1    | Front Panel                | See Table 6 | 1    |
| 2    | Emergency Button           | EL-00131-00 | 1    |
| 3    | 2-way Switch               | EL-00131-41 | 1    |
| 4    | Counter                    | EL-00163-10 | 1    |
| 5    | Counter                    | EL-00163-10 | 1    |
| 6    | Reset Button               | EL-00131-39 | 1    |
| 7    | Base Connector Housing     | EL-00096-65 | 2    |
| 8    | Engine Control Panel       | EL-00173-00 | 1    |
| 9    | Manometer                  | HI-00112    | 1    |
| 10   | Green LED                  | EL-00131-25 | 1    |
| 11   | Red LED                    | EL-00131-24 | 1    |
| 12   | Amber LED                  | EL-00131-23 | 1    |
| 13   | Male Connector Base Unit   | EL-00096-08 | 1    |
| 14   | Pressure Switch            | HI-00110    | 1    |
| 15   | Blue LED                   | EL-00131-29 | 1    |
| 16   | Engine Control Panel Clip  | MQ-12233    | 2    |
| 17   | T-Connector                | RA-00135    | 1    |
| 18   | Straight Connector         | RA-00259    | 1    |
| 19   | Reducer                    | RA-00371    | 1    |
| 20   | Female Connector Base Unit | EL-00096-37 | 1    |



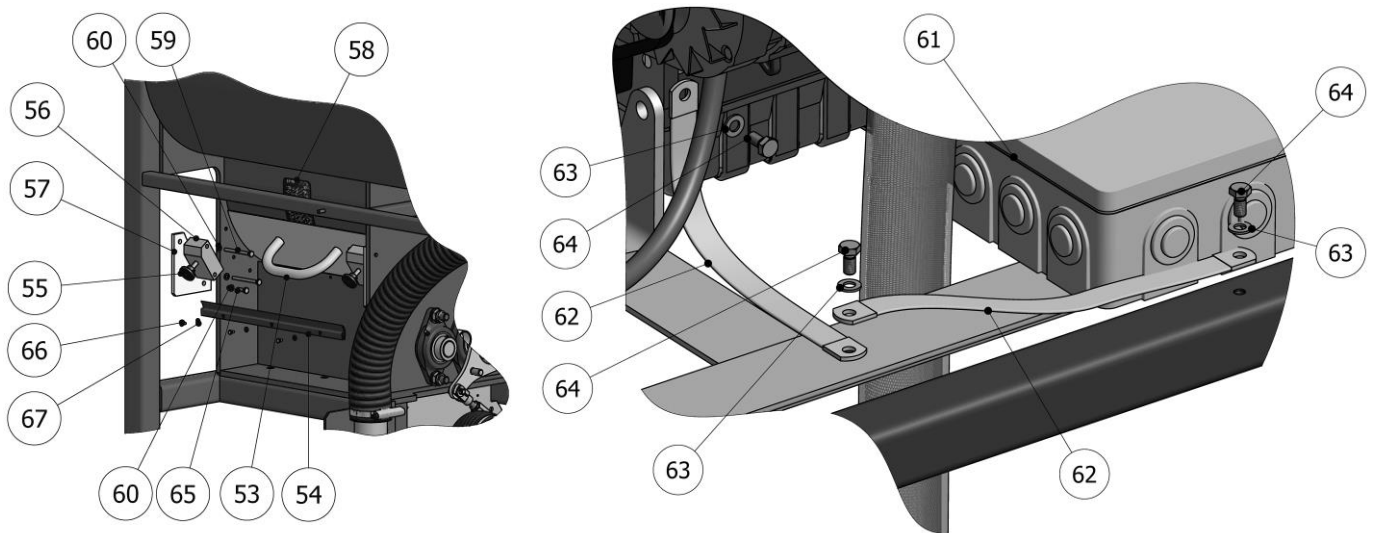
**GUARDS**



*Figure 6. Model novaG - fill 60 Guards*



**Figure 7. Console Fixing, Door Micro Switch and Dispenser Chutes**



**Figure 8. Dispenser Chutes & Ground Connection**



Parts Identification

**Table 10. Injection Unit Guard List  
model novaG - fill 60**

| Pos. | Description                | Reference      | Amt. |
|------|----------------------------|----------------|------|
| 1    | Machine Structure          | MQ-12001-00-NG | 1    |
| 2    | Top Cover                  | MQ-12250       | 4    |
| 3    | Top Left Guard Unit        | MQ-12027-00-NG | 1    |
| 4    | Top Right Guard Unit       | MQ-12026-00-NG | 1    |
| 5    | Removable Left Guard Unit  | MQ-12029-00-NG | 1    |
| 6    | Removable Right Guard Unit | MQ-12028-00-NG | 1    |
| 7    | Rear Guard Unit            | MQ-12025-00-NG | 1    |
| 8    | Transmission Guard Unit    | MQ-12030-00-NG | 1    |
| 9    | Hinged Top Cover           | MQ-12023-00-NG | 1    |
| 10   | Fixed Top Cover            | MQ-12024-00-NG | 1    |
| 11   | ULS Bolt                   | TN-00248       | 4    |
| 14   | ULS Bolt                   | TN-00013       | 20   |
| 15   | Knob Nut                   | TN-00435       | 8    |
| 16   | Hex. Bolt                  | TN-00356       | 17   |
| 17   | Hinge                      | MQ-12234       | 3    |
| 18   | Countersunk Bolt           | TN-00322       | 12   |
| 19   | Catch                      | MQ-12247       | 1    |
| 20   | ULS Bolt                   | TN-00143       | 6    |
| 21   | Cutter                     | HT-00102       | 1    |
| 22   | Lower Door Bar             | MQ-12043       | 2    |
| 23   | Upper Door Bar             | MQ-12044       | 2    |
| 24   | Bar Cable                  | MQ-12248       | 2    |
| 25   | Hex Bolt                   | TN-00051       | 2    |
| 26   | Washer                     | TN-00028       | 2    |
| 27   | Washer                     | TN-00119       | 2    |
| 28   | Allen Bolt                 | TN-00026       | 2    |
| 29   | Hex Bolt                   | TN-00362       | 2    |
| 30   | Set Screw                  | TN-00363       | 4    |
| 31   | Nut                        | TN-00108       | 2    |
| 32   | Washer                     | TN-00024       | 2    |





## Parts Identification

| Pos. | Description                       | Reference      | Amt. |
|------|-----------------------------------|----------------|------|
| 33   | Battery Stand                     | MQ-12051       | 1    |
| 34   | Battery Flange                    | MQ-12042-NG    | 2    |
| 35   | Battery                           | EL-00214       | 1    |
| 36   | Hex Bolt                          | TN-00276       | 4    |
| 37   | Washer                            | TN-00025       | 4    |
| 38A  | Battery Connector (Negative Pole) | EL-00100-21    | 1    |
| 38B  | Battery Connector (Positive Pole) | EL-00100-20    | 1    |
| 39   | Multi-Connector Housing           | EL-00096-36    | 1    |
| 40   | 6-Pin Female Base                 | EL-00096-34    | 1    |
| 41   | 6-Pin Female Base                 | EL-00096-32    | 1    |
| 42   | Gland                             | EL-00087-03    | 1    |
|      | Reducer                           | EL-00091-06    | 1    |
| 43   | Micro Cam Lever                   | MQ-12034-00-NG | 1    |
| 44   | Door Micro Switch Lever           | MQ-12035-NG    | 1    |
| 45   | Shaft Bolt                        | TN-00331       | 2    |
| 46   | Bushing                           | TN-00332       | 2    |
| 47   | Hex Bolt                          | TN-00371       | 2    |
| 48   | Door Safety Micro Switch          | EL-00020-01    | 1    |
| 49   | Allen Bolt                        | TN-00001       | 2    |
| 50   | Allen Bolt                        | TN-00186       | 4    |
| 51   | Washer                            | TN-00028       | 4    |
| 53   | Chute                             | MQ-12004-00-NG | 2    |
| 54   | Chute Seal                        | OR-00126       | 2    |
| 55   | Chute Lock                        | MQ-12031-02    | 4    |
| 56   | Locking Screw Support             | MQ-12031-01    | 4    |
| 57   | Chute Guide                       | MQ-12031       | 4    |
| 58   | Chute Scale                       | EM-00062       | 2    |
| 59   | Hex Bolt                          | TN-00328       | 8    |
| 60   | Washer                            | TN-00025       | 12   |
| 61   | Connection Box                    | EL-00158-12    | 1    |
| 62   | Ground Connection                 | EL-00103-21    | 2    |



Parts Identification

| Pos. | Description | Reference | Amt. |
|------|-------------|-----------|------|
| 63   | Hex. Bolt   | TN-00114  | 3    |
| 64   | Washer      | TN-00119  | 3    |
| 65   | Hex. Bolt   | TN-00276  | 4    |
| 66   | Hex. Bolt   | TN-00317  | 6    |
| 67   | Washer      | TN-00104  | 6    |

**Upper Guards**

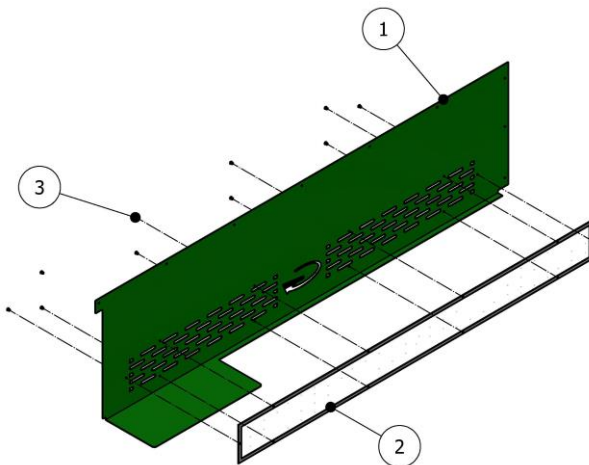


Figure 9. Left Upper Guard

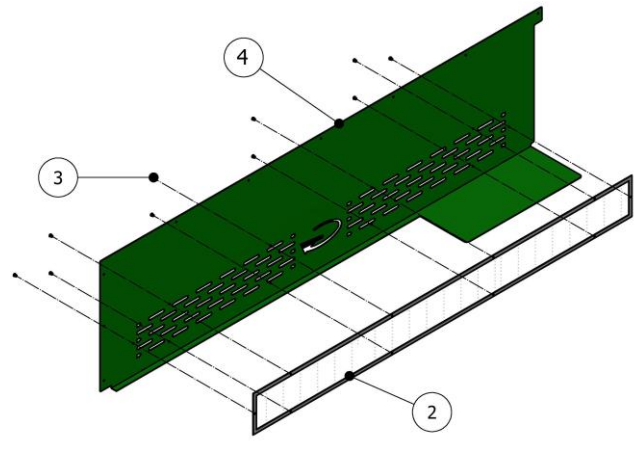


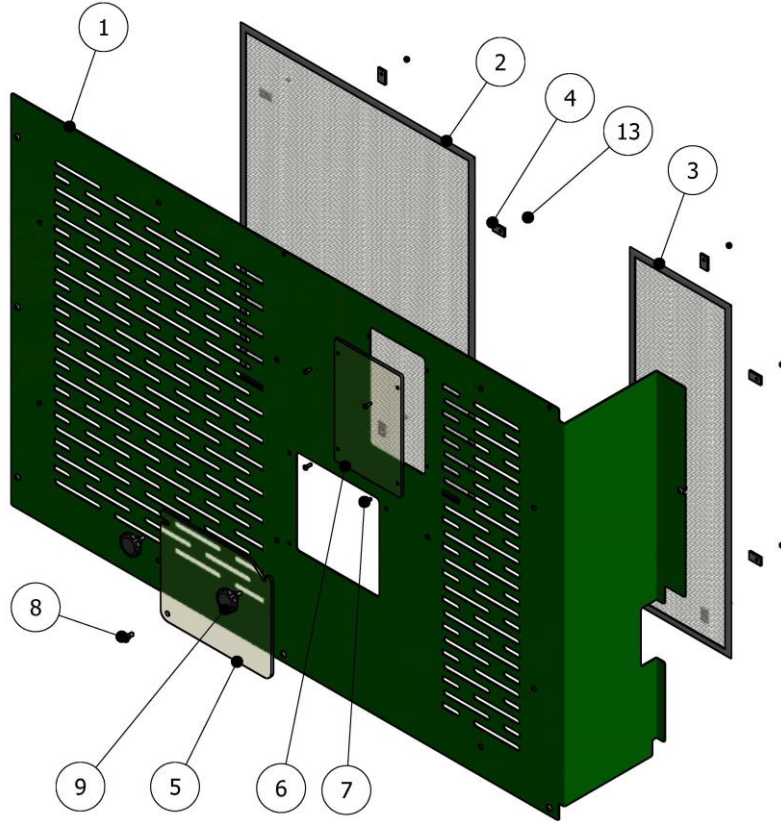
Figure 10. Right Upper Guard

Table 11. Upper Guard Components List

| Pos. | Description       | Reference      | Amt.  |
|------|-------------------|----------------|-------|
| 1    | Left Upper Guard  | MQ-12027-01-NG | 1     |
| 2    | Filter            | MQ-12026-02    | 1 – 1 |
| 3    | Rivet             | TN-00372       | 10–10 |
| 4    | Right Upper Guard | MQ-12026-01-NG | 1     |



**Left Removable Guard**

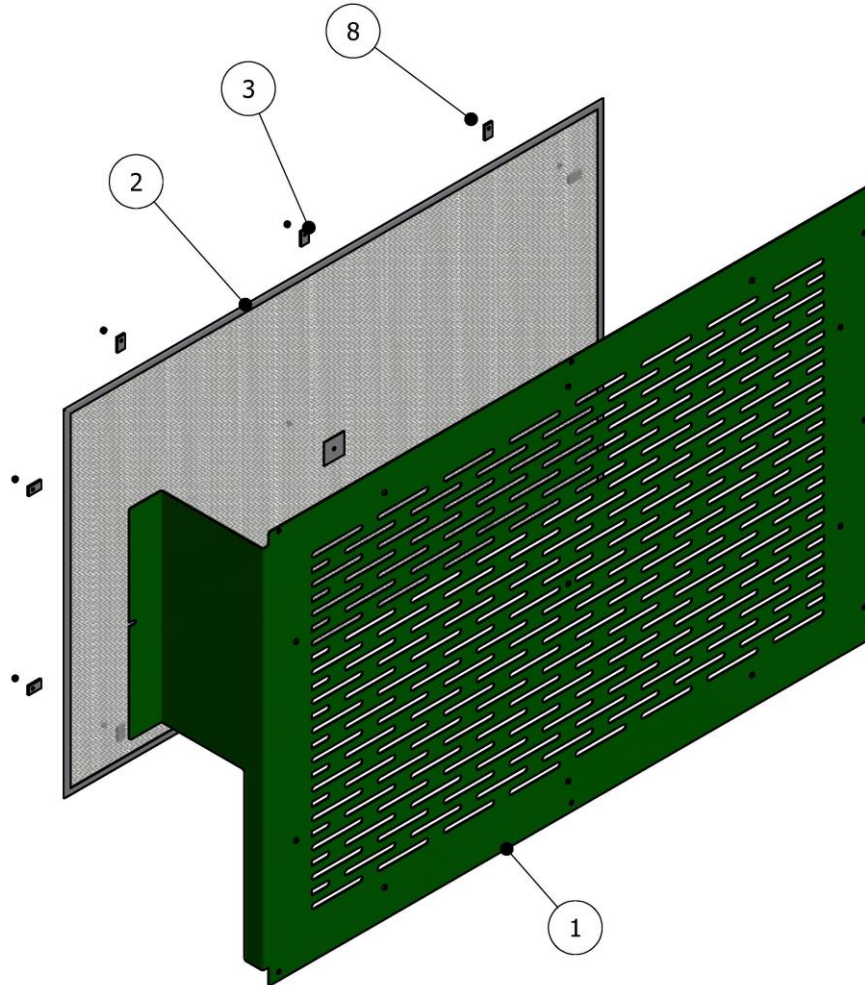


**Figure 11. Left Side Guard**

**Table 12. Left Side Guard Components List**

| Pos. | Description          | Reference      | Amt. |
|------|----------------------|----------------|------|
| 1    | Left Side Guard Weld | MQ-12029-01-NG | 1    |
| 2    | Large Filter         | MQ-12029-02    | 1    |
| 3    | Small Filter         | MQ-12029-03    | 1    |
| 4    | Filter Clip          | MQ-12028-03    | 11   |
| 5    | Oil Level Hatch      | MQ-12029-05    | 1    |
| 6    | Diesel Filter Window | MQ-12029-04    | 1    |
| 7    | Bolt                 | TN-00143       | 4    |
| 8    | Shaft Bolt           | TN-00331       | 1    |
| 9    | Male Knob            | TN-00434       | 2    |
| 13   | Nut                  | TN-00312       | 11   |

**Right Removable Guard**



*Figure 12. Right Side Guard*

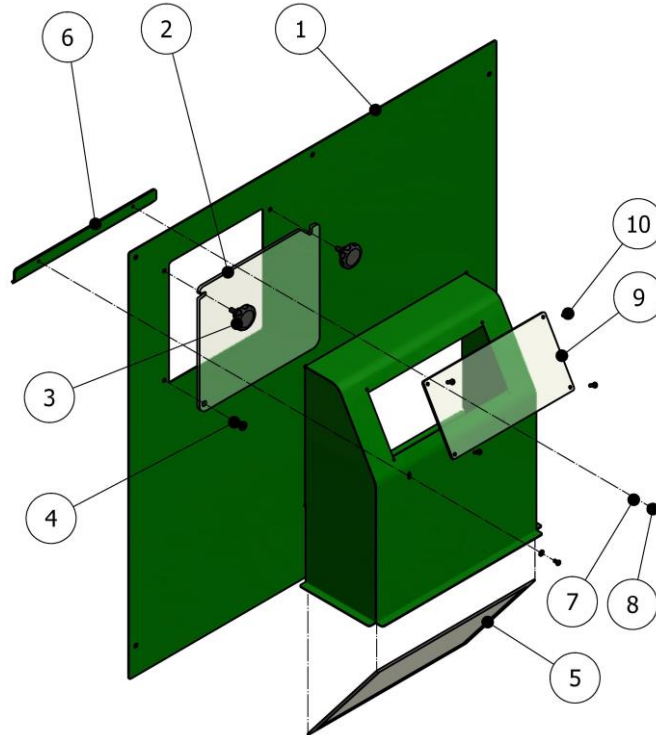
**Table 13. Right Side Guard Components List**

| Pos. | Description           | Reference      | Amt. |
|------|-----------------------|----------------|------|
| 1    | Right Side Guard Weld | MQ-12028-01-NG | 1    |
| 2    | Filter                | MQ-12028-02    | 1    |
| 3    | Filter Clip           | MQ-12028-03    | 10   |
| 4    | Hex Nut               | TN-00312       | 11   |



Parts Identification

**Rear Guard**

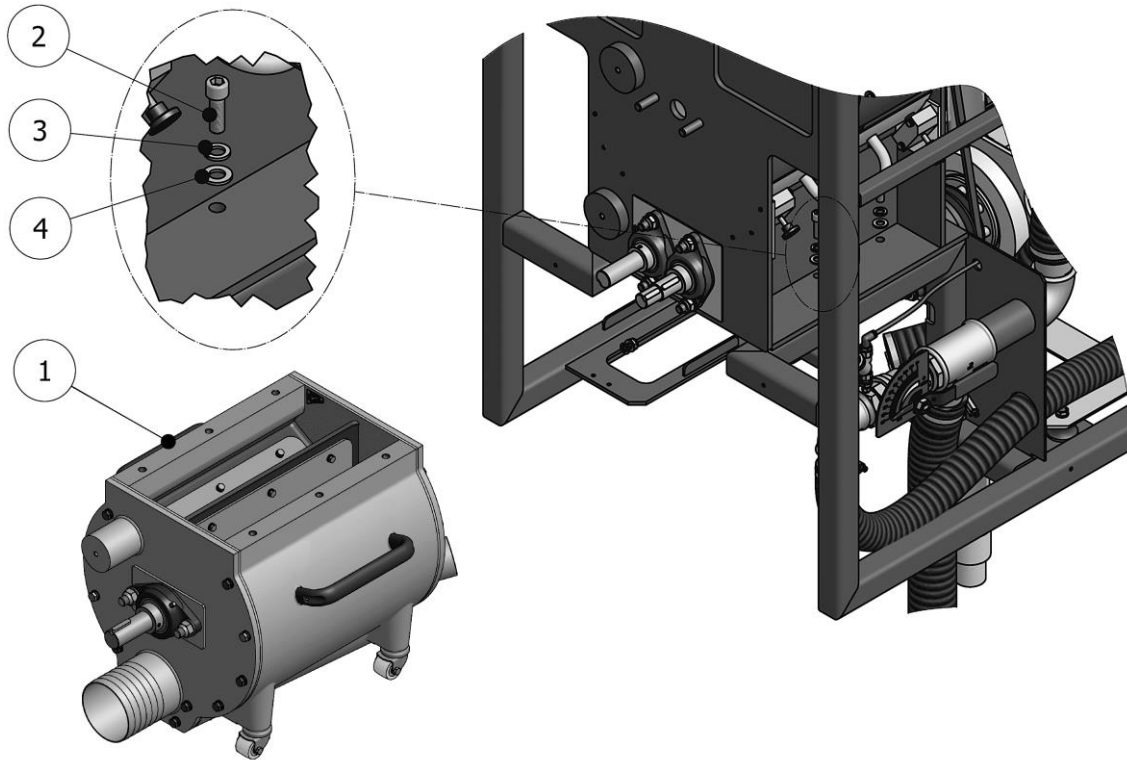


*Figure 13. Rear Guard*

**Table 14. Rear Guard Components List**

| Pos. | Description             | Reference      | Amt. |
|------|-------------------------|----------------|------|
| 1    | Rear Guard              | MQ-12025-01-NG | 1    |
| 2    | Chute                   | MQ-12025-02    | 1    |
| 3    | Male Knob               | TN-00434       | 2    |
| 4    | Shaft Bolt              | TN-00331       | 1    |
| 5    | Radiator Suction Filter | MQ-12025-04    | 1    |
| 6    | Filter Clip             | MQ-12025-03-NG | 1    |
| 7    | Washer                  | TN-00104       | 2    |
| 8    | Bolt                    | TN-00031       | 2    |
| 9    | Radiator Window         | MQ-12025-05    | 1    |
| 10   | Bolt                    | TN-00143       | 4    |

## AIRLOCK DISPENSING UNIT



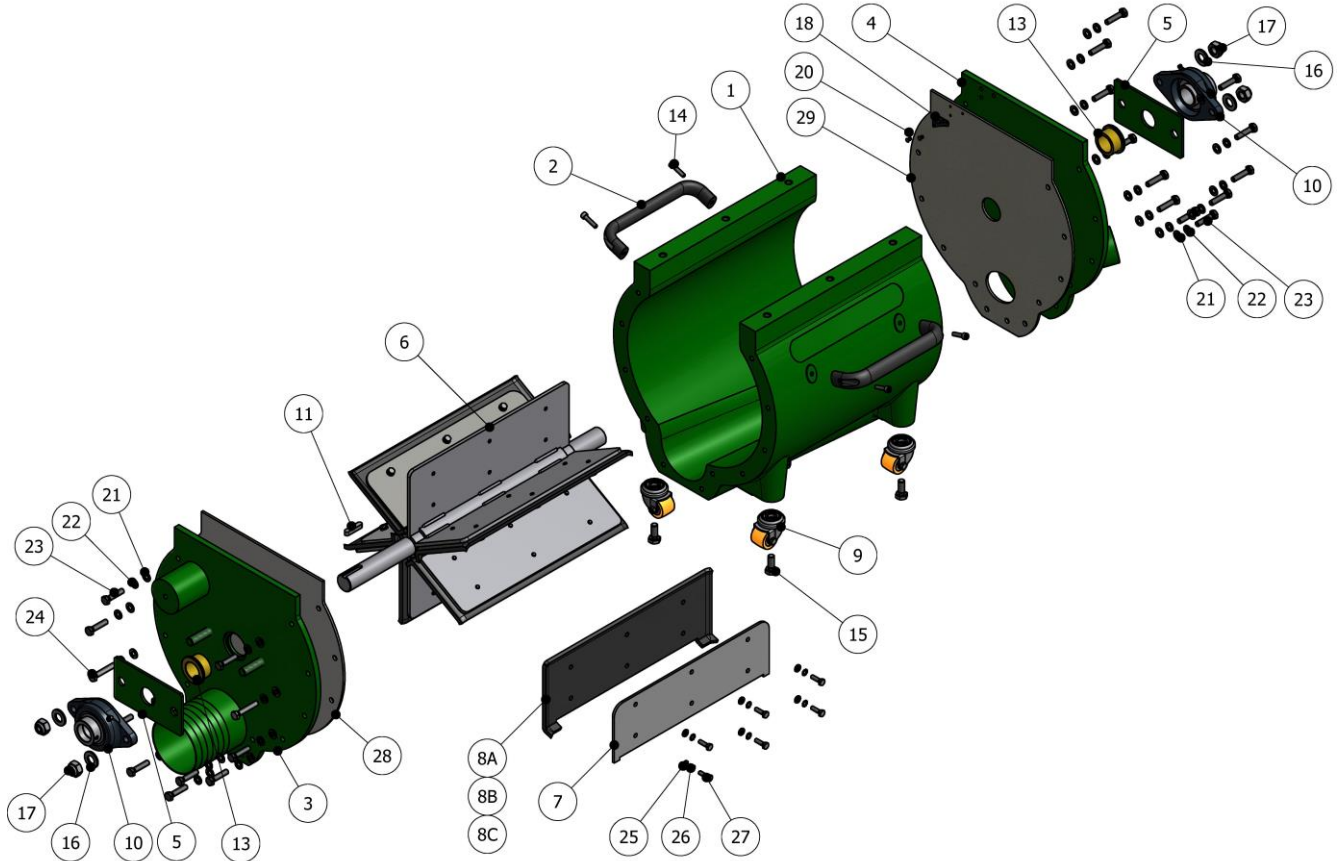
*Figure 14. Airlock Dispensing Unit Assembly*

*Table 15. Airlock Assembly Components List*

| Pos. | Description             | Reference     | Amt. |
|------|-------------------------|---------------|------|
| 1    | Airlock Dispensing Unit | MQ-12003-M-NG | 1    |
| 2    | Bolt                    | TN-00053      | 6    |
| 3    | Washer                  | TN-00039      | 6    |
| 4    | Washer                  | TN-00040      | 6    |



## Airlock Dispenser Explosion System



**Figure 15. Airlock Dispenser Explosion System**

**Table 16. Airlock Components List**

| Pos. | Description                 | Reference        | Amt. |
|------|-----------------------------|------------------|------|
| 1    | Airlock Dispenser Body Unit | MQ-12003-01MF-NG | 1    |
| 2    | Handle                      | MQ-12259         | 2    |
| 3    | Front Cover                 | MQ-12003-02MM-NG | 1    |
| 4    | Rear Cover                  | MQ-12003-03MM-NG | 1    |
| 5    | Bushing Stop Plate          | MQ-12003-05-NG   | 2    |
| 6    | Dispenser Shaft Unit        | MQ-12003-07      | 1    |
| 7    | Rubber Fixing Plate         | MQ-12003-08      | 6    |

*Continued on next page*



**Parts Identification**

*Continued from previous page*

| Pos. | Description                 | Reference     | Amt. |
|------|-----------------------------|---------------|------|
| 8    | Dispenser Blade Seals       | See Table 17  | -    |
| 9    | Wheel                       | MQ-12200      | 4    |
| 10   | Support with Bearing        | TN-00344      | 2    |
|      | Oiler (include in Pos.10) @ | TN-00073      | 2    |
| 11   | Key                         | TN-00337      | 1    |
| 13   | Shaft Bushing               | MQ-12003-06   | 2    |
| 14   | Allen Bolt                  | TN-00169      | 4    |
| 15   | Hex Bolt                    | TN-00189      | 4    |
| 16   | Washer                      | TN-00132      | 4    |
| 17   | Nut                         | TN-000342     | 4    |
| 18   | LH Directional Plate        | MQ-12003-11   | 1    |
| 20   | Rivet                       | TN-00352      | 3    |
| 21   | Washer                      | TN-00119      | 23   |
| 22   | Washer                      | TN-00028      | 23   |
| 23   | Hex. Bolt                   | TN-00054      | 21   |
| 24   | Hex. Bolt                   | TN-00051      | 2    |
| 25   | Washer                      | TN-00024      | 36   |
| 26   | Washer                      | TN-00048      | 36   |
| 27   | Hex. Bolt                   | TN-00276      | 36   |
| 28   | Front Anti-wear Plate       | MQ-12003-02DM | 1    |
| 29   | Rear Anti-wear Plate        | MQ-12003-03CM | 1    |

@ Not supplied separately.

**Table 17. Blade Seal Models**

| Pos. | Description  | Reference    | Amt. |
|------|--|--------------|------|
| 8 A  | Reinforced Rubber Dispenser Blade Seal (Opt.)      | MQ-12003-09A | 6    |
| 8 B  | 90 Shore Polyurethane Dispenser Blade Seal         | MQ-12003-09B | 6    |
| 8 C  | 45 Shore Virgin Rubber Dispenser Blade Seal (Opt.) | MQ-12003-09C | 6    |





## ENGINE COOLING CIRCUIT

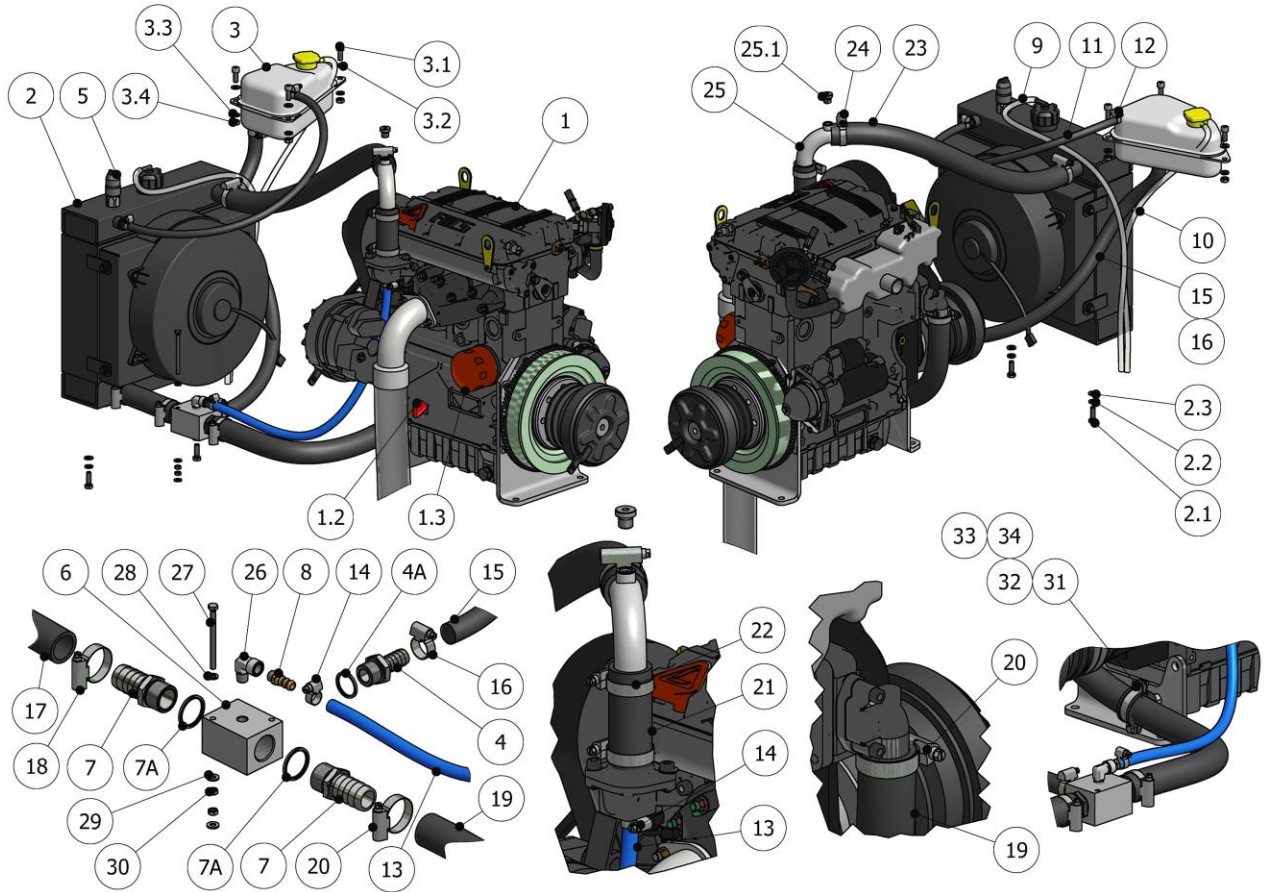


Figure 16. Engine Cooling Circuit

Table 18. Cooling Circuit Components List

| Pos. | Description                           | Reference | Amt. |
|------|---------------------------------------|-----------|------|
| 1    | Engine Unit                           | MQ-12201  | 1    |
| 1.2  | Oil Dipstick (included in Pos. 1) (@) | -         | 1    |
| 1.3  | Oil Filter (included in Pos. 1)       | HI-00106  | 1    |
| 2    | Radiator Unit                         | MQ-12205  | 1    |
| 2.1  | Radiator Fixing Hex Bolt              | TN-00146  | 2    |
| 2.2  | Radiator Fixing Washer                | TN-00028  | 2    |
| 2.3  | Radiator Fixing Washer                | TN-00119  | 2    |

Continued on next page. (@) Parts not supplied separately.



**Parts Identification**

|            |   |             |        |
|------------|---|-------------|--------|
| <b>3</b>   | Expansion Vessel Unit                     | MQ-12205-01 | 1      |
| <b>3.1</b> | Expansion Vessel Fixing Allen Bolt        | TN-00176    | 3      |
| <b>3.2</b> | Expansion Vessel Fixing Washer            | TN-00119    | 3      |
| <b>3.3</b> | Expansion Vessel Fixing Washer            | TN-00028    | 3      |
| <b>3.4</b> | Expansion Vessel Fixing Hex Bolt          | TN-00029    | 3      |
| <b>4</b>   | Straight Hose Fitting                     | RA-00463    | 1      |
| <b>4A</b>  | Metall Ring                               | OR-00082    | 1      |
| <b>5</b>   | Contact Thermostat                        | EL-00006-01 | 1      |
| <b>6</b>   | Manifold                                  | MQ-12064    | 1      |
| <b>7</b>   | Straight Hose Fitting                     | RA-00462    | 2      |
| <b>7A</b>  | Metall Ring                               | OR-00061    | 2      |
| <b>8</b>   | Straight Hose Fitting                     | RA-00409    | 1      |
| <b>9</b>   | Radiator Drain Tube.                      | MA-00068    | 0.8 m  |
| <b>10</b>  | Expansion Vessel Drain Tube.              | MA-00068    | 0.7 m  |
| <b>11</b>  | Radiator-Expansion Vessel Hose            | MA-00139    | 0.8 m  |
| <b>12</b>  | Mikalor Flange                            | TN-00357    | 2      |
| <b>13</b>  | Thermostat-Radiator Output Hose           | MA-00134    | 0.7 m  |
| <b>14</b>  | Mikalor Flange                            | TN-00357    | 2      |
| <b>15</b>  | Expansion Vessel-Radiator Output Hose     | MA-00132    | 0.7 m  |
| <b>16</b>  | Mikalor Flange                            | TN-00364    | 2      |
| <b>17</b>  | Radiator Output-Bypass Hose               | MA-00133    | 0.15 m |
| <b>18</b>  | Mikalor Flange                            | TN-00365    | 2      |
| <b>19</b>  | Bypass-Engine Water Pump Hose             | MA-00133    | 0.7 m  |
| <b>20</b>  | Mikalor Flange                            | TN-00365    | 2      |
| <b>21</b>  | Contact Thermostat-Radiator Input Hose    | MA-00133    | 0.1 m  |
| <b>22</b>  | Mikalor Flange                            | TN-00365    | 2      |
| <b>23</b>  | Engine Thermostat-Contact Thermostat Hose | MA-00133    | 0.62m  |
| <b>24</b>  | Mikalor Flange                            | TN-00365    | 2      |



Parts Identification

|            |                    |          |   |
|------------|--------------------|----------|---|
| <b>25</b>  | Elbow Hose Fitting | MQ-12258 | 1 |
| <b>25A</b> | Plug               | RA-00461 | 1 |
| <b>26</b>  | Elbow              | RA-00408 | 1 |
| <b>27</b>  | Hex. Bolt          | -        | 1 |
| <b>28</b>  | Washer             | TN-00025 | 1 |
| <b>29</b>  | Washer             | TN-00048 | 2 |
| <b>30</b>  | Nut                | TN-00108 | 2 |
| <b>31</b>  | Clamp              | TN-00432 | 1 |
| <b>32</b>  | Hex. Bolt          | TN-00146 | 1 |
| <b>33</b>  | Flat Washer        | TN-00119 | 1 |
| <b>34</b>  | AET Washer         | TN-00038 | 1 |

## FUEL CIRCUIT

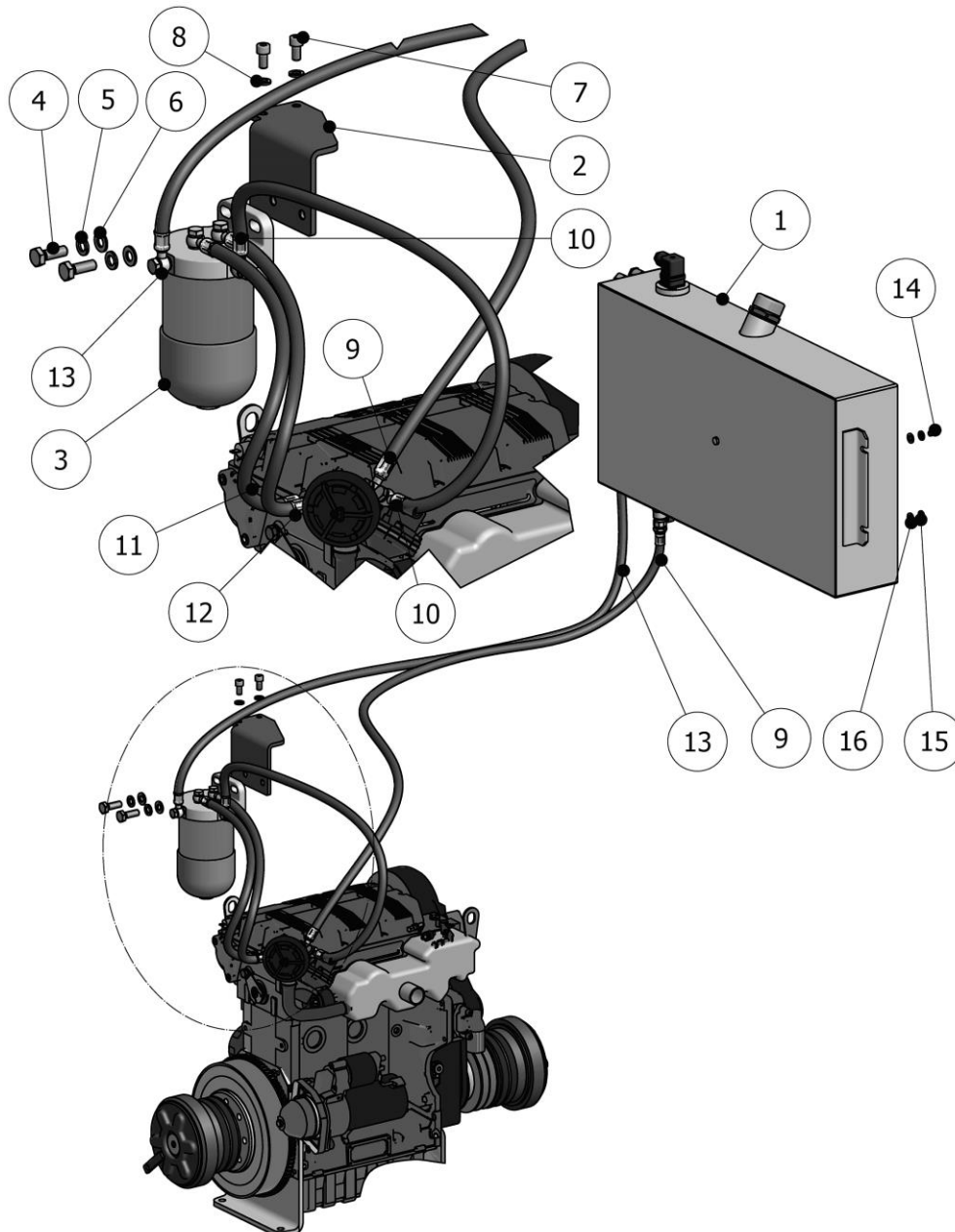


Figure 17. Engine Fuel Circuit



## Parts Identification

**Table 19. Engine Fuel Circuit Components List**

| <b>Pos.</b> | <b>Description</b>                               | <b>Reference</b>   | <b>Amt.</b> |
|-------------|--|--------------------|-------------|
| 1           | Tank Unit  | MQ-12021-CJTO-A-NG | 1           |
| 2           | Diesel Filter Support                            | MQ-12037           | 1           |
| 3           | Diesel Filter (included in Engine Unit MQ-12201) | HI-00107           | 1           |
| 4           | Hex Bolt   | TN-00129           | 2           |
| 5           | Washer   | TN-00087           | 2           |
| 6           | Washer   | TN-00162           | 2           |
| 7           | Allen Bolt                                       | TN-00186           | 2           |
| 8           | Washer   | TN-00119           | 2           |
| 9           | Tank-Fuel Pump Flow Hose                         | MA-00128           | 1.35 m      |
| 10          | Pump-Fuel Filter Flow Hose                       | MA-00128           | 0.75 m      |
| 11          | Filter-Engine Injection Hose                     | MA-00128           | 0.53 m      |
| 12          | Engine-Fuel Filter Return Hose                   | MA-00128           | 0.53 m      |
| 13          | Filter-Fuel Tank Return Hose                     | MA-00128           | 1.46 m      |
| 14          | Hex Bolt   | TN-00187           | 4           |
| 15          | Washer   | TN-00028           | 4           |
| 16          | Washer   | TN-00119           | 4           |

### Fuel Tank Explosion System

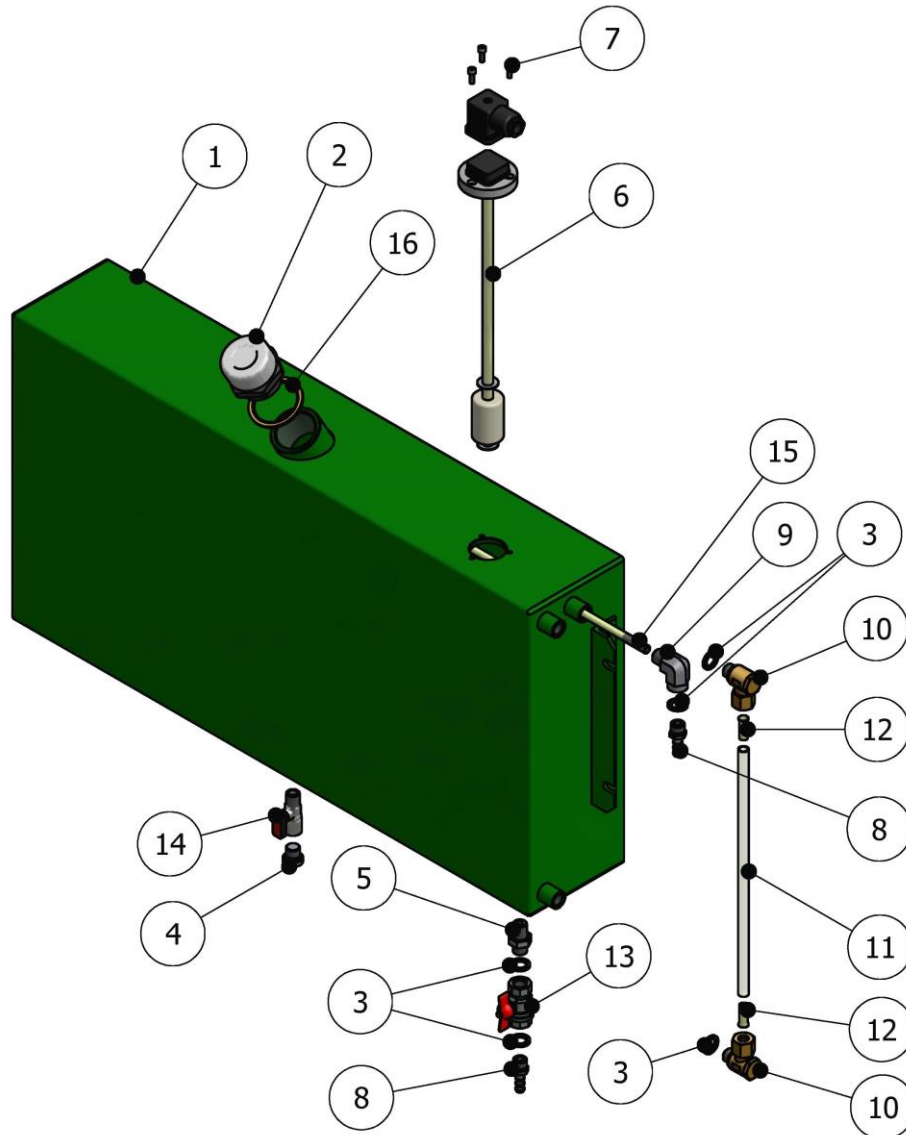


Figure 18. Fuel Tank Explosion System



## Parts Identification

**Table 20. Fuel Tank Components List**

| Pos. | Description                | Reference       | Amt.  |
|------|----------------------------|-----------------|-------|
| 1    | Welded Diesel Tank Unit    | MQ-12021-00A-NG | 1     |
| 2    | Tank Cap                   | MQ-12021-10     | 1     |
| 3    | Dual Material Seal         | OR-00054        | 3     |
| 4    | Male Plug                  | RA-00013        | 1     |
| 5    | Threaded Connector         | RA-00102        | 1     |
| 6    | Level Sensor Unit          | HI-00111        | 1     |
| 7    | Allen Bolt                 | TN-00049        | 3     |
| 8A   | Flow Hose                  | MA-00128        | 1     |
| 8B   | Return Hose                | MA-00128        | 1     |
| 9    | 90° Elbow                  | RA-00416-M      | 1     |
| 10   | Banjo Connector            | RA-00377        | 2     |
| 11   | Transparent Polyamide Tube | MA-00024        | 0.28m |
| 12   | Interior Reinforcement     | RA-00378        | 2     |
| 13   | Ball Valve                 | RA-00325        | 1     |
| 14   | Ball Valve                 | RA-00265        | 1     |
| 15   | Comeback Pipe              | MQ-12021-11     | 1     |
| 16   | Dual Material Seal         | OR-00088        | 1     |
| 17   | Seal                       | OR-00139        | 4     |

## TRANSMISSION

### Exterior Transmission Explosion System

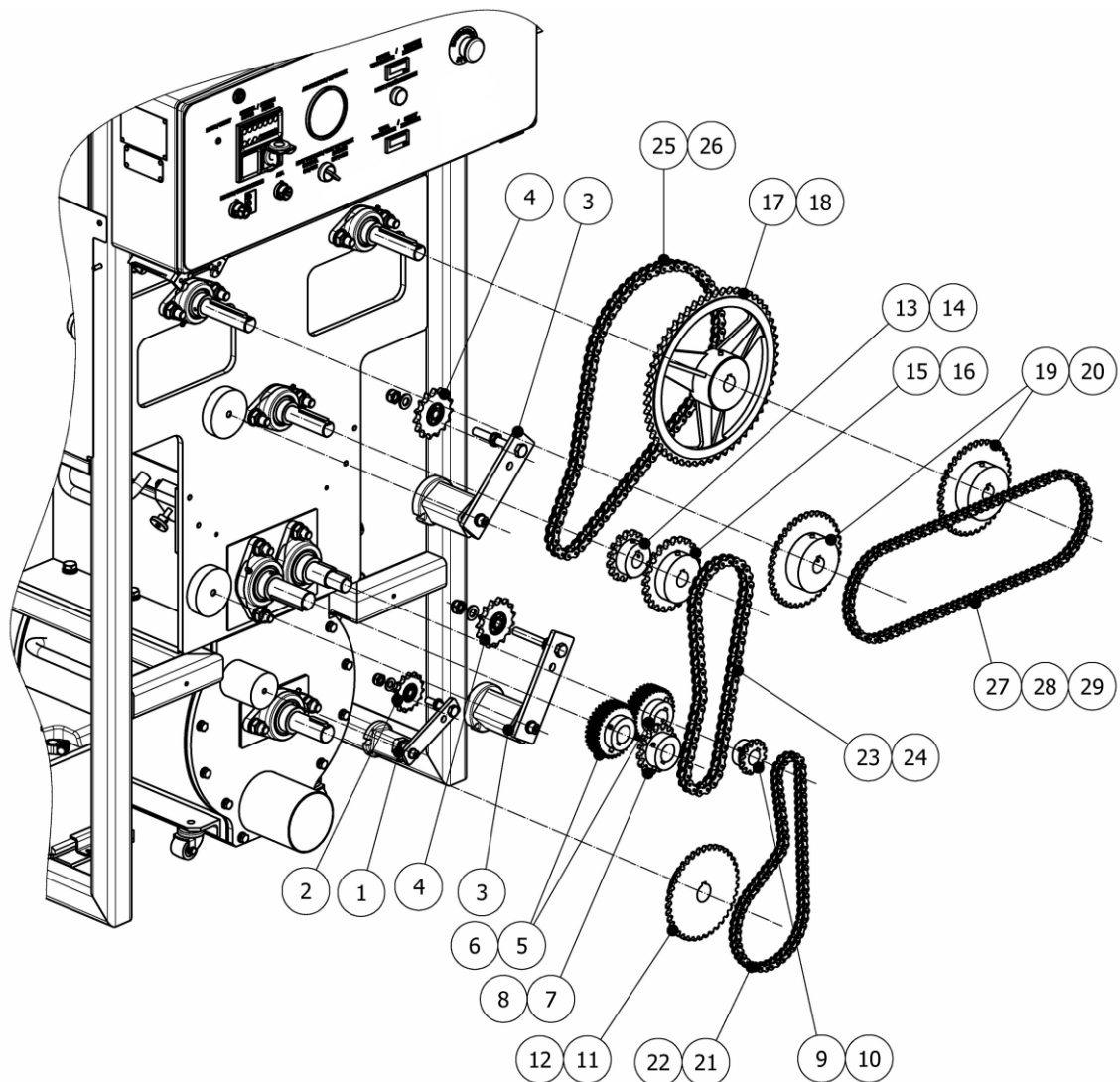


Figure 19. Exterior Transmission Explosion System





## Parts Identification

**Table 21. Exterior Transmission Components List**

| Pos. | Description                      | Reference   | Amt. |
|------|----------------------------------|-------------|------|
| 1    | Chain Tightener Unit 1/2"        | MQ-12227    | 1    |
| 2    | Chain Tightener Pinion Unit 1/2" | MQ-12228    | 1    |
| 3    | Chain Tightener Unit 5/8"        | MQ-12225    | 2    |
| 4    | Chain Tightener Pinion Unit 5/8" | MQ-12226    | 2    |
| 5    | Gear Wheel                       | MQ-12217    | 2    |
| 6    | Set Screw                        | TN-00358    | 4    |
| 7    | Chain Pinion 5/8"                | MQ-12212    | 1    |
| 8    | Set Screw                        | TN-00358    | 2    |
| 9    | Chain Pinion 1/2"                | MQ-12216    | 1    |
| 10   | Set Screw                        | TN-00359    | 2    |
| 11   | Chain Pinion 1/2"                | MQ-12214    | 1    |
| 12   | Set Screw                        | TN-00360    | 2    |
| 13   | Chain Pinion 5/8"                | MQ-12213    | 1    |
| 14   | Set Screw                        | TN-00358    | 2    |
| 15   | Chain Pinion 5/8"                | MQ-12211A   | 1    |
| 16   | Set Screw                        | TN-00360    | 2    |
| 17   | Chain Pinion 5/8"                | MQ-12210    | 1    |
| 18   | Set Screw                        | TN-00361    | 2    |
| 19   | Chain Pinion 1/2"                | MQ-12215    | 2    |
| 20   | Set Screw                        | TN-00361    | 4    |
| 21   | Chain 1/2"                       | MQ-12224    | 1    |
| 22   | Chain Joint 1/2"                 | MQ-12251    | 1    |
| 23   | Chain 5/8"                       | MQ-12222    | 1    |
| 24   | Chain Joint 5/8"                 | MQ-12252    | 1    |
| 25   | Chain 5/8"                       | MQ-12221    | 1    |
| 26   | Chain Joint 5/8"                 | MQ-12252    | 1    |
| 27   | Chain 1/2"                       | MQ-12223    | 1    |
| 28   | Chain Half Link 1/2"             | MQ-12223-UN | 1    |
| 29   | Chain Joint 1/2"                 | MQ-12251    | 1    |

### Chain Tensioners Detail

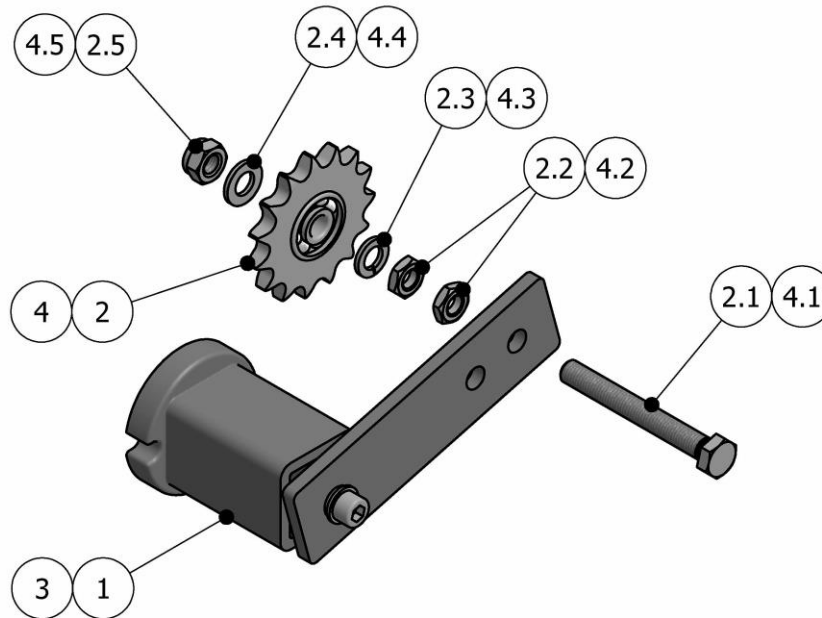


Figure 20. Chain Tensioners Detail

Table 22. Chain Tensioners Detail, Parts List

| Pos. | Description                       | Reference | Qty.  |
|------|-----------------------------------|-----------|-------|
| 1    | Tensioner Device for chain 1/2"   | MQ-12227  | 1     |
| 2    | Sprocket Wheel Set for chain 1/2" | MQ-12228  | 1     |
| 2.1  | Hex. Bolt (Included in Pos.2) (@) | -         | 1     |
| 2.2  | Nut (Included in Pos.2) (@)       | -         | 2     |
| 2.3  | Washer                            | TN-00145  | 1     |
| 2.4  | Washer                            | TN-00162  | 1     |
| 2.5  | Lock Nut                          | TN-00265  | 1     |
| 3    | Tensioner Device for chain 5/8"   | MQ-12225  | 2     |
| 4    | Sprocket Wheel Set for chain 5/8" | MQ-12226  | 2     |
| 4.1  | Hex. Bolt                         | TN-00396  | 1 (*) |
| 4.2  | Nut (Included in Pos.4) (@)       | -         | 1 (*) |
| 4.3  | Washer                            | TN-00015  | 1 (*) |
| 4.4  | Washer                            | TN-00040  | 1 (*) |
| 4.5  | Lock Nut                          | TN-00030  | 1 (*) |

(\*) Quantities for one set. (@) Parts not supplied separately.



## Interior Transmission Explosion System

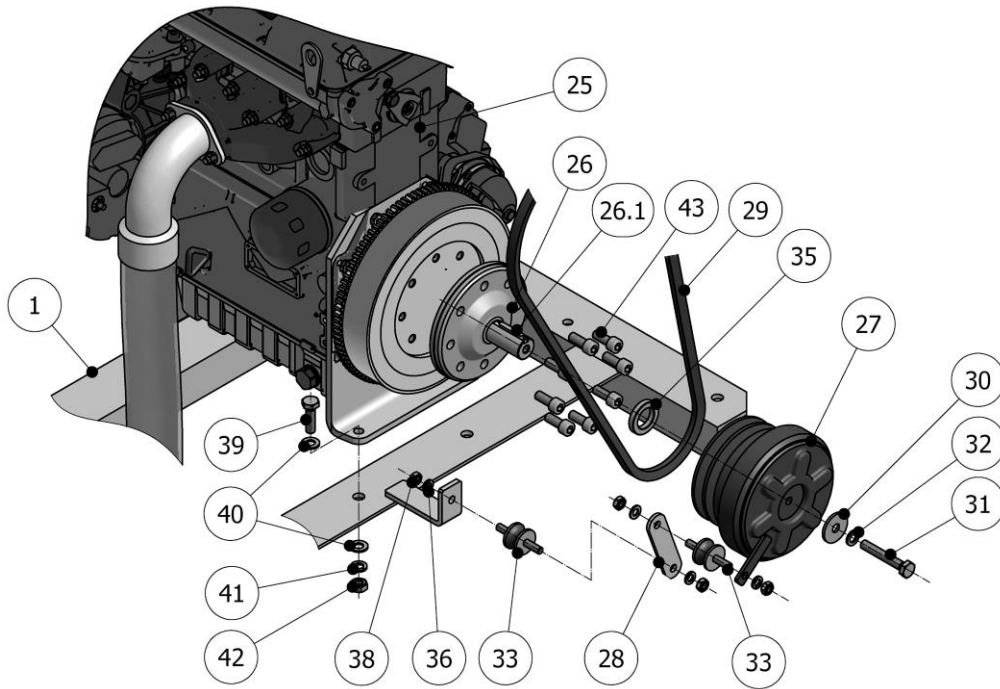


Figure 21. Primary Engine Transmission Explosion System

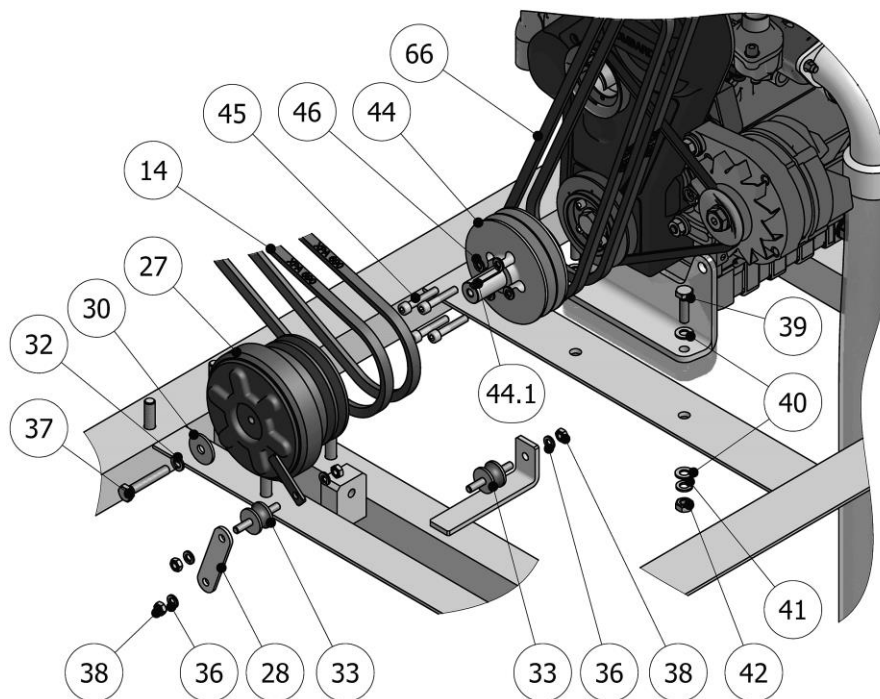


Figure 22. Secondary Engine Transmission Explosion System

Parts Identification

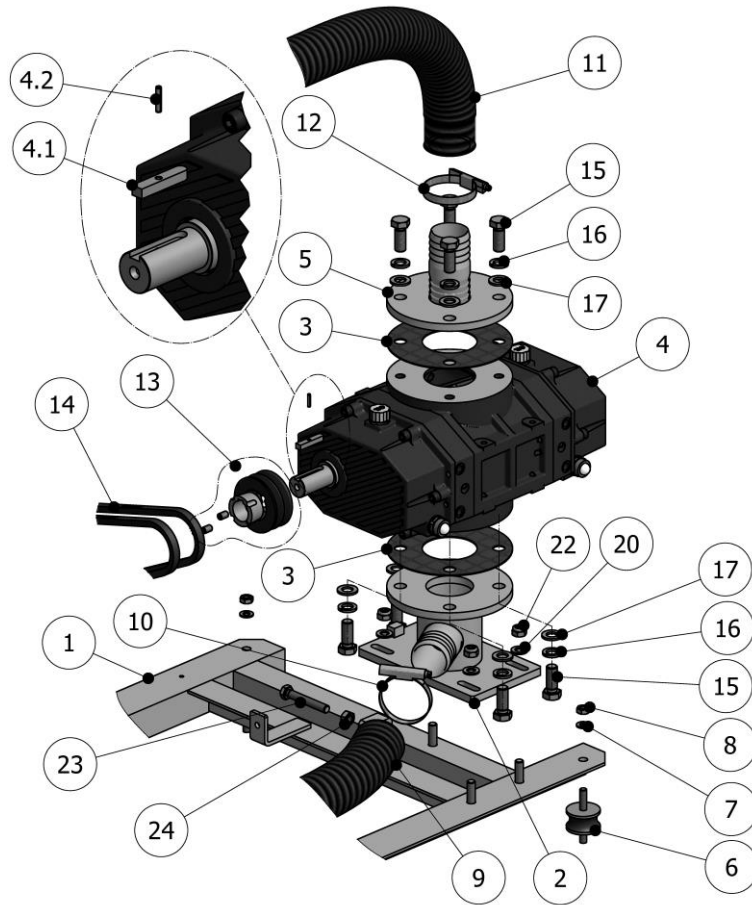


Figure 23. Blower Transmission Explosion System

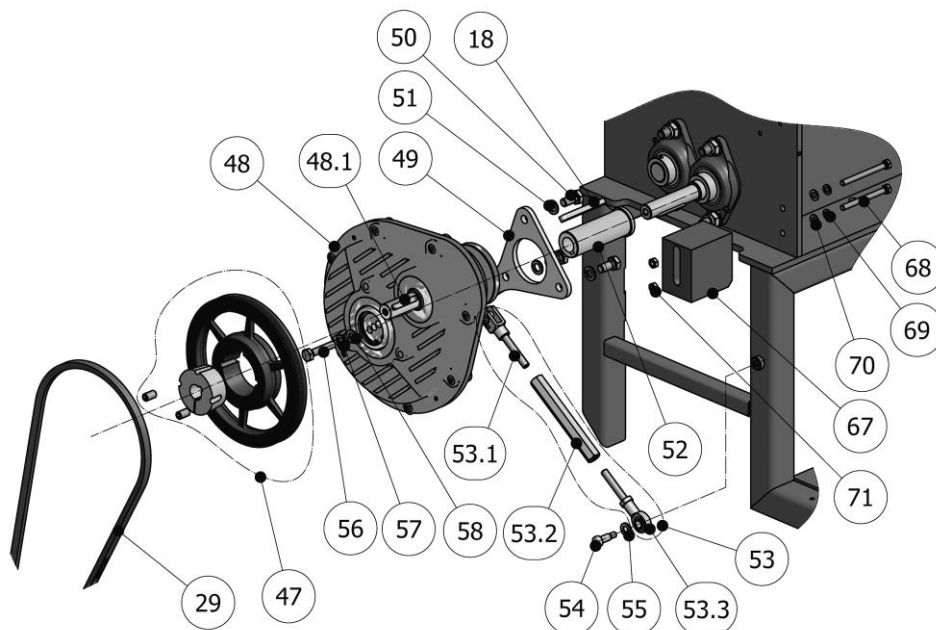
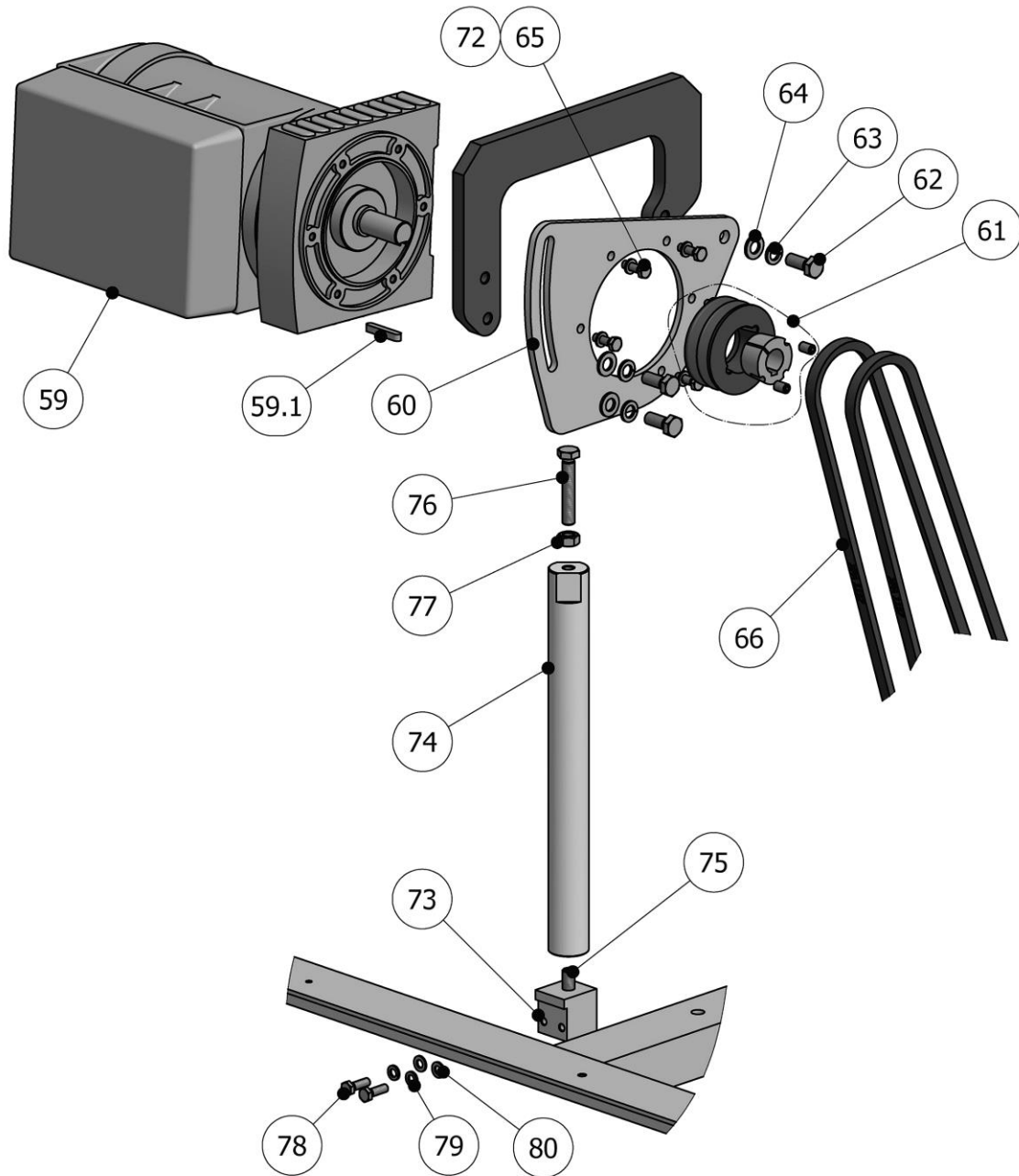


Figure 24. Explosión Transmisión Reductor Pendular



Parts Identification



**Figure 25. Alternator Transmission Explosion System (Optional)**



Parts Identification

**Table 23. Interior Transmission Components List**

| Pos. | Description                                       | Reference      | Amt.  |
|------|---|----------------|-------|
| 1    | Engine Mount Unit                                 | MQ-12002-00-NG | 1     |
| 2    | Blower Support Unit                               | MQ-12020-00-NG | 1     |
| 3    | Blower Flange Seal                                | MQ-12033       | 2     |
| 4    | Blower  | MQ-12203-01-NG | 1     |
| 4.1  | Key (Included in Pos.4) (@)                       | -              | 1     |
| 4.2  | Pin (Included in Pos.4)                           | TN-00084       | 1     |
| 5    | Blower Input Flange                               | MQ-12022-00-NG | 1     |
| 6    | Silenbloc   | TN-00345       | 4     |
| 7    | Washer  | TN-00087       | 4     |
| 8    | Hex Nut   | TN-00105       | 4     |
| 9    | Compressed Air Duct                               | MA-00131       | 0.38m |
| 10   | Mikalor Flange                                    | TN-00368       | 2     |
| 11   | Suction Air Duct                                  | MA-00131       | 1.30m |
| 12   | Mikalor Flange                                    | TN-00368       | 2     |
| 13   | Blower Pulley Unit                                | MQ-12256       | 1     |
| 14   | Blower Belt                                       | MQ-12257       | 2     |
| 15   | Hex Bolt  | TN-00095       | 8     |
| 16   | Washer  | TN-00044       | 8     |
| 17   | Washer  | TN-00045       | 8     |
| 18   | Key   | TN-00341       | 1     |
| 20   | Washer  | TN-00040       | 4     |
| 22   | Hex Nut   | TN-00030       | 4     |
| 23   | Hex Bolt  | TN-00122       | 1     |
| 24   | Hex Nut   | TN-00023       | 1     |
| 25   | Engine Unit                                       | MQ-12201       | 1     |
| 26   | Engine Output Primary Shaft (Included in Pos. 25) | MQ-12201-01D   | 1     |
| 26.1 | Key (Included in Pos. 26)                         | MP-00057       | 45mm  |
| 27   | Clutch  | MQ-12202       | 2     |
| 28   | Clutch Support Strip                              | MQ-12007-NG    | 2     |
| 29   | Reducer Belt                                      | MQ-12209       | 1     |

*(@) Parts not supplied separately.*



## Parts Identification

| Pos. | Description                           | Reference   | Amt. |
|------|---------------------------------------|-------------|------|
| 30   | Clutch Stop Washer                    | MQ-12057    | 2    |
| 31   | Hex Bolt                              | TN-         | 1    |
| 32   | Washer                                | TN-00087    | 2    |
| 33   | Silenbloc                             | TN-00346    | 4    |
| 35   | Washer                                | MQ-12059-A  | 1    |
| 36   | Washer                                | TN-00028    | 8    |
| 37   | Hex. Bolt Theard LH                   | MQ-12255    | 1    |
| 38   | Hex Nut                               | TN-00029    | 8    |
| 39   | Hex Bolt                              | TN-00163    | 4    |
| 40   | Washer                                | TN-00162    | 8    |
| 41   | Washer                                | TN-00087    | 4    |
| 42   | Hex Nut                               | TN-00165    | 4    |
| 43   | Allen Bolt (Included in Pos.25)       | TN-00189    | 8    |
| 44   | Secondary Engine Output Shaft         | MQ-12017-D  | 1    |
| 44.1 | Key (Included in Pos. 44)             | MP-00057    | 40mm |
| 45   | Allen Bolt                            | TN-00282    | 4    |
| 46   | Washer                                | TN-00028    | 4    |
| 47   | Reducer Pulley Unit                   | MQ-12206    | 1    |
| 48   | Swinging Reducer                      | MQ-12204    | 1    |
| 48.1 | Key (Included in Pos.48)              | TN-00263    | 1    |
| 49   | Tightening Flange                     | MQ-12019-NG | 1    |
| 50   | Hex Bolt                              | TN-00130    | 3    |
| 51   | Washer                                | TN-00039    | 3    |
| 52   | Reducer Output Shaft Extension        | MQ-12016    | 1    |
| 53   | Swinging Tightener Unit               | MQ-12018-00 | 1    |
| 53.1 | Tightening Fork (included in Pos. 53) | MQ-12018-03 | 1    |
| 53.2 | Tightener Body (included in Pos. 53)  | MQ-12018-01 | 1    |
| 53.3 | Tightener Head (included in Pos. 53)  | MQ-12018-02 | 1    |
| 54   | Shaft Bolt                            | TN-00326    | 1    |
| 55   | Washer                                | TN-00162    | 1    |
| 56   | Hex Bolt                              | TN-00123    | 1    |
| 57   | Washer                                | TN-00087    | 1    |



## Parts Identification

| Pos. | Description                  | Reference   | Amt.  |
|------|------------------------------|-------------|-------|
| 58   | Washer                       | TN-00162    | 1     |
| 59   | Alternator Unit              | MQ-12249    | 1 (*) |
| 59.1 | Key (included in Pos. 59)    | TN-00339    | 1 (*) |
| 60   | Alternator Tightening Flange | MQ-12055-NG | 1 (*) |
| 61   | Double Groove Pulley Unit    | MQ-12245    | 1 (*) |
| 62   | Hex Bolt                     | TN-00060    | 3 (*) |
| 63   | Washer                       | TN-00039    | 3 (*) |
| 64   | Washer                       | TN-00040    | 3 (*) |
| 65   | Hex. Bolt                    | TN-00146    | 5 (*) |
| 66   | Alternator Belt              | MQ-12246    | 2 (*) |
| 67   | Stopper Reducer              | MQ-12061    | 1     |
| 68   | Hex. Bolt                    | TN-00378    | 2     |
| 69   | Washer                       | TN-00028    | 2     |
| 70   | Washer                       | TN-00119    | 2     |
| 71   | Nut                          | TN-00029    | 2     |
| 72   | Washer                       | TN-00028    | 5 (*) |
| 73   | Support                      | MQ-12072-NG | 1     |
| 74   | Pilar                        | MQ-12071    | 1 (*) |
| 75   | Screw                        | TN-00398    | 1 (*) |
| 76   | Hex. Bolt                    | TN-00397    | 1 (*) |
| 77   | Nut                          | TN-00023    | 1 (*) |
| 78   | Hex. Bolt                    | TN-00146    | 2     |
| 79   | Washer                       | TN-00028    | 2     |
| 80   | Washer                       | TN-00119    | 2     |

**Note:**

*Parts marked with (\*) are for the optional machine version with auxiliary alternator.*





## AIR DUCTS

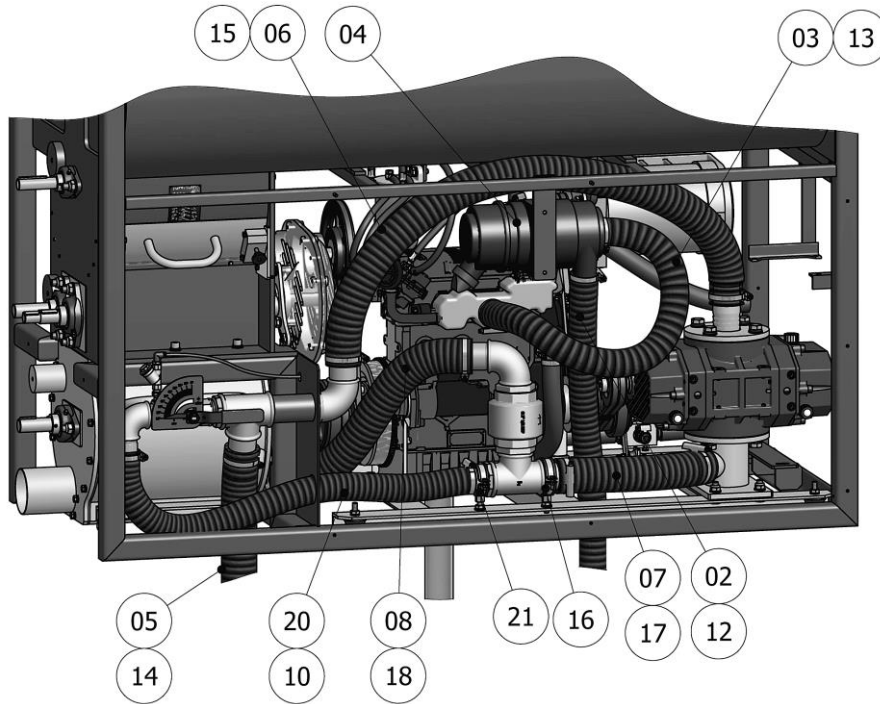


Figure 26. General Air Duct Assembly

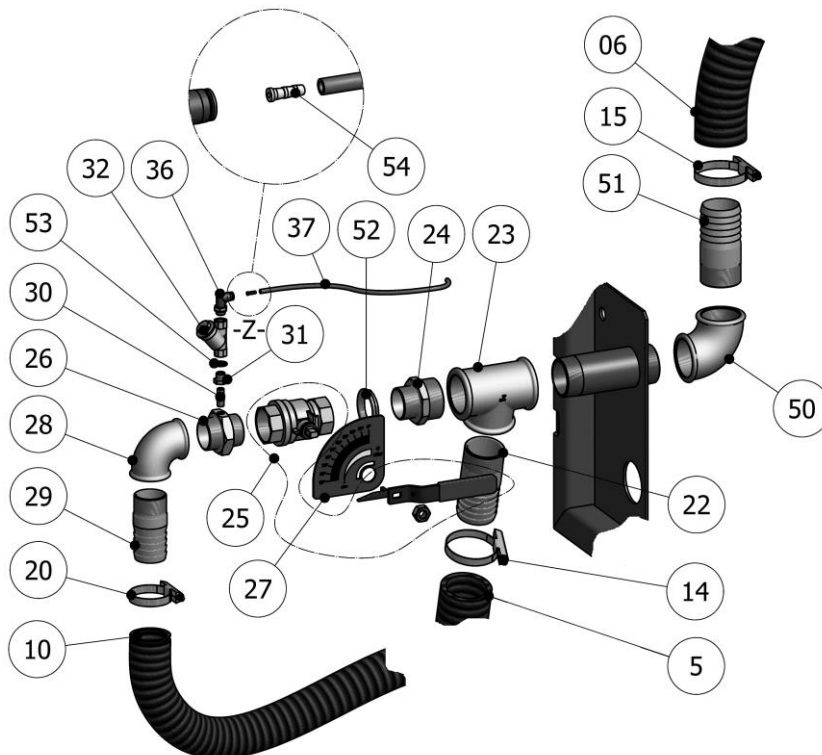


Figure 27. Detail of Air Control Assembly

Parts Identification

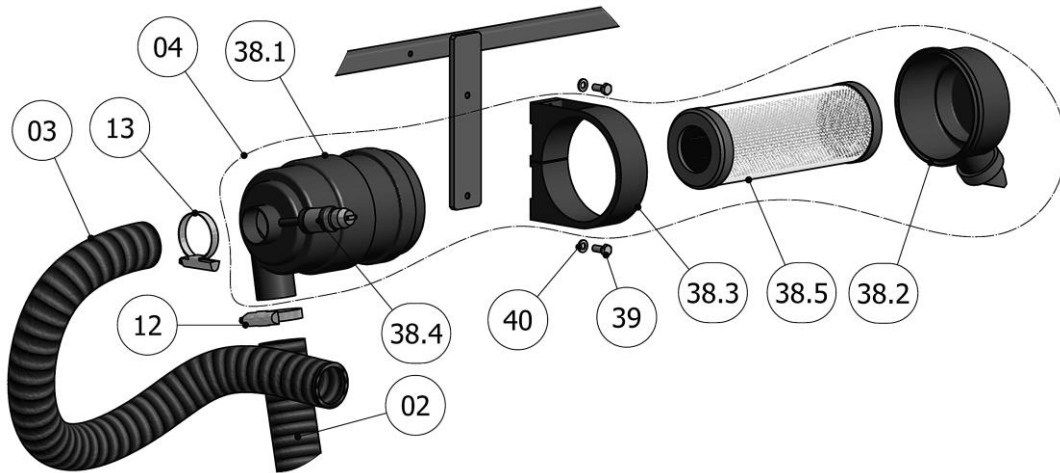


Figure 28. Detail of Air Filter Assembly

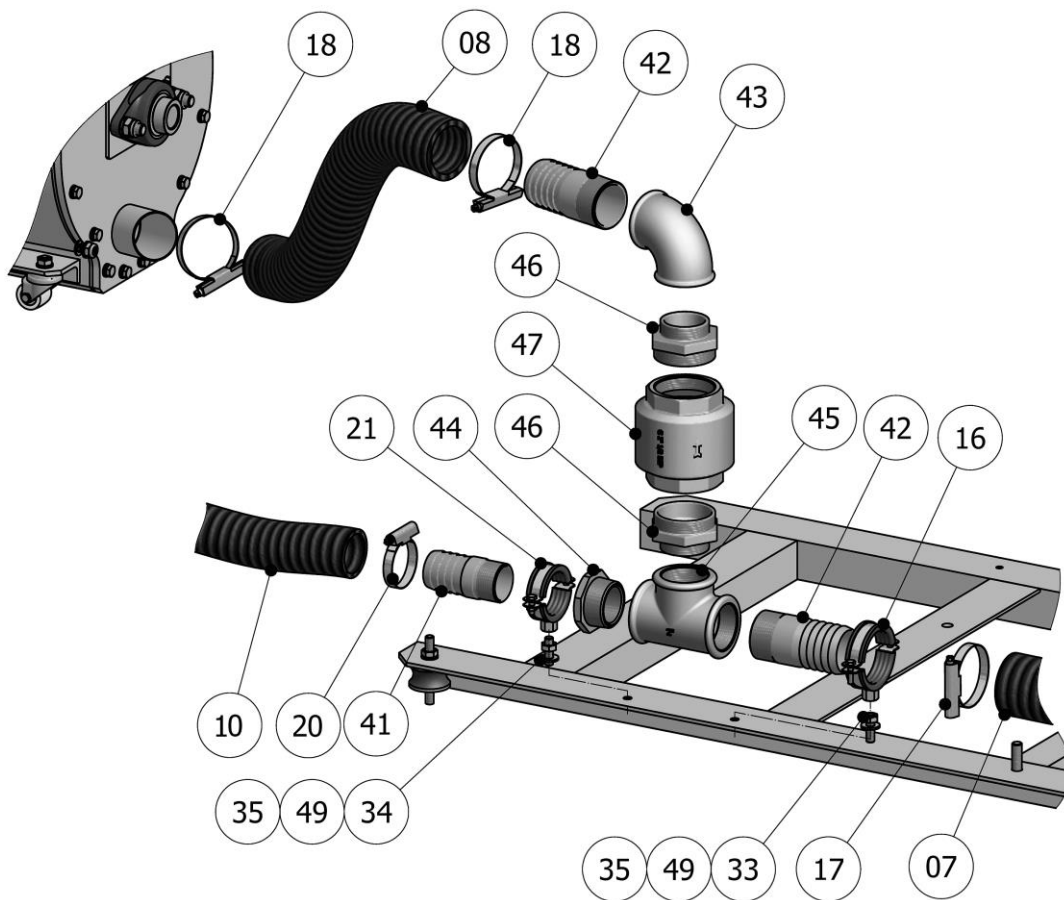


Figure 29. Detail of Pressure Line Assembly



## Parts Identification

**Table 24. Air Duct Components List**

| Pos. | Description                                  | Reference | Amt.   |
|------|--|-----------|--------|
| 1    |  |           |        |
| 2    | Suction Hose, Engine Air Section 1           | MA-00130  | 0.70 m |
| 3    | Suction Hose, Engine Air Section 2           | MA-00130  | 1.20 m |
| 4    | Engine Suction Filter Unit                   | HI-00108  | 1      |
| 5    | Suction Hose, Blower Section 1               | MA-00131  | 0.70 m |
| 6    | Suction Hose, Blower Section 2               | MA-00131  | 1.30 m |
| 7    | Blower Output Hose                           | MA-00131  | 0.38 m |
| 8    | Airlock Feed Hose                            | MA-00131  | 0.58 m |
| 9    |  |           |        |
| 10   | Recirculation Hose                           | MA-00130  | 0.85 m |
| 11   |  |           |        |
| 12   | Mikalor Flange                               | TN-00353  | 1      |
| 13   | Mikalor Flange                               | TN-00353  | 2      |
| 14   | Mikalor Flange                               | TN-00368  | 1      |
| 15   | Mikalor Flange                               | TN-00368  | 2      |
| 16   | Flange                                       | TN-00348  | 2      |
| 17   | Mikalor Flange                               | TN-00368  | 2      |
| 18   | Mikalor Flange                               | TN-00368  | 2      |
| 19   |  |           |        |
| 20   | Mikalor Flange                               | TN-00353  | 2      |
| 21   | Flange                                       | TN-00347  | 1      |
| 22   | Straight Coupling                            | MQ-12242  | 1      |
| 23   | T-connector                                  | RA-00355  | 1      |
| 24   | Reducer                                      | RA-00358  | 1      |
| 25   | Pressure Control Valve Unit                  | MQ-12047  | 1      |
| 26   | Threaded Connector with Manometer Connection | MQ-12032  | 1      |
| 27   | Control Scale                                | MQ-12046  | 1      |
| 28   | 90° Elbow                                    | RA-00357  | 1      |
| 29   | Straight Coupling                            | MQ-12241  | 1      |



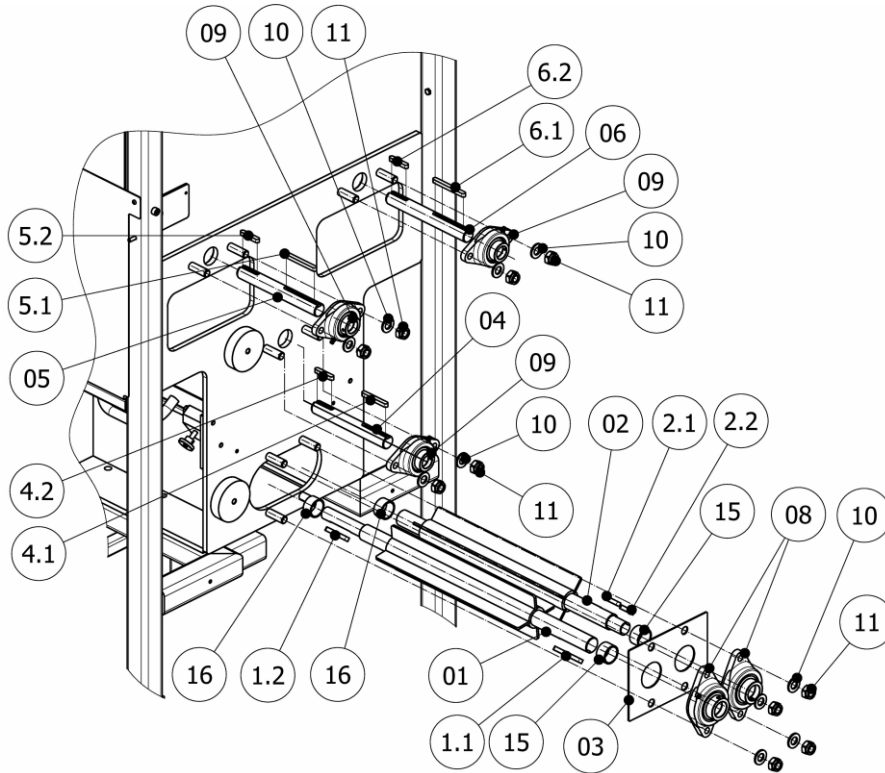
Parts Identification

| Pos. | Description                            | Reference | Amt. |
|------|--|-----------|------|
| 30   | Threaded Connector                     | RA-00112  | 1    |
| 31   | Reducer                                | RA-00371  | 1    |
| 32   | Y-filter                               | RA-00372  | 1    |
| 33   | Threaded Bolt                          | TN-00129  | 1    |
| 34   | Threaded Bolt                          | TN-00129  | 1    |
| 35   | Hex. Nut                               | TN-00105  | 2    |
| 36   | Elbow                                  | RA-00380  | 1    |
| 37   | Pneumatic Tube                         | MA-00071  | 1    |
| 38.1 | Filter Body (Included in Pos. 4) (*)   | -         | 1    |
| 38.2 | Filter Cap (Included in Pos. 4) (*)    | -         | 1    |
| 38.3 | Filter Flange (Included in Pos. 4) (*) | -         | 1    |
| 38.4 | Filter Sensor (Included in Pos. 4) (*) | -         | 1    |
| 38.5 | Air Filter (Included in Pos. 4) (*)    | -         | 1    |
| 39   | Hex Bolt                               | TN-00187  | 2    |
| 40   | Washer                                 | TN-00119  | 2    |
| 41   | Straight Coupling                      | MQ-12241  | 1    |
| 42   | Straight Coupling                      | MQ-12242  | 2    |
| 43   | 90° Elbow                              | RA-00356  | 1    |
| 44   | Reducer                                | RA-00359  | 1    |
| 45   | T-connector                            | RA-00355  | 1    |
| 46   | Threaded Connector                     | RA-00401  | 2    |
| 47   | Non-Return Valve                       | RA-00402  | 1    |
| 48   |  |           |      |
| 49   | Washer                                 | TN-00145  | 2    |
| 50   | 90° Elbow                              | RA-00356  | 1    |
| 51   | Straight Coupling                      | MQ-12242  | 1    |
| 52   | Nut                                    | RA-00410  | 1    |
| 53   | Seal                                   | OR-00054  | 1    |
| 54   | Reducer Bushing                        | MQ-12075  | 1    |

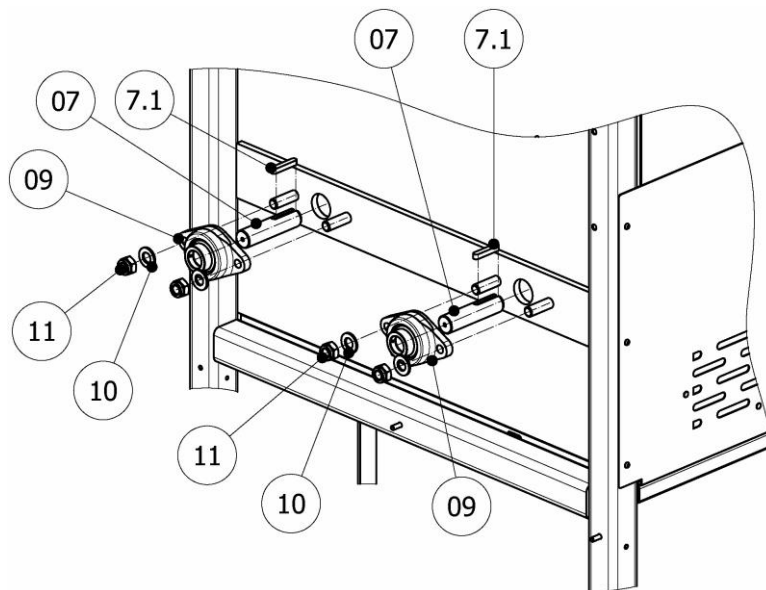
**Note: Parts marked with (\*) are not supplied separately.**



## SHAFTS



**Figure 30. Front Side Shaft and Spindle Assembly**



**Figure 31. Rear Side Spindle Assembly**

Parts Identification

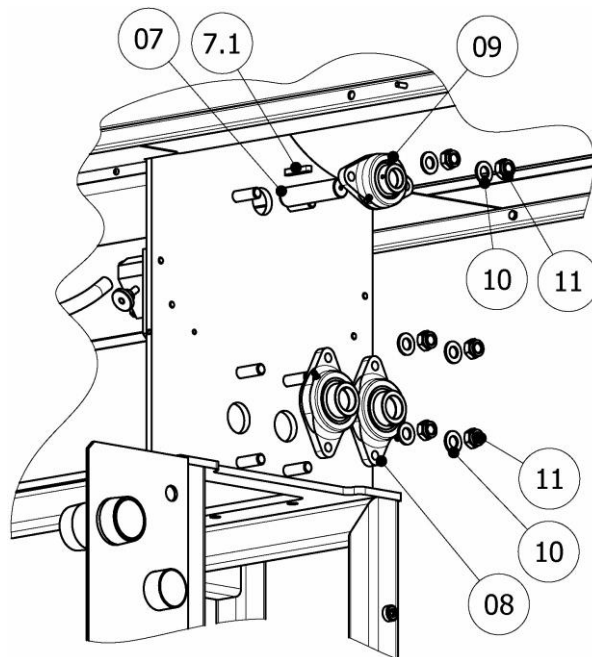


Figure 32. Rear Side Shaft Assembly

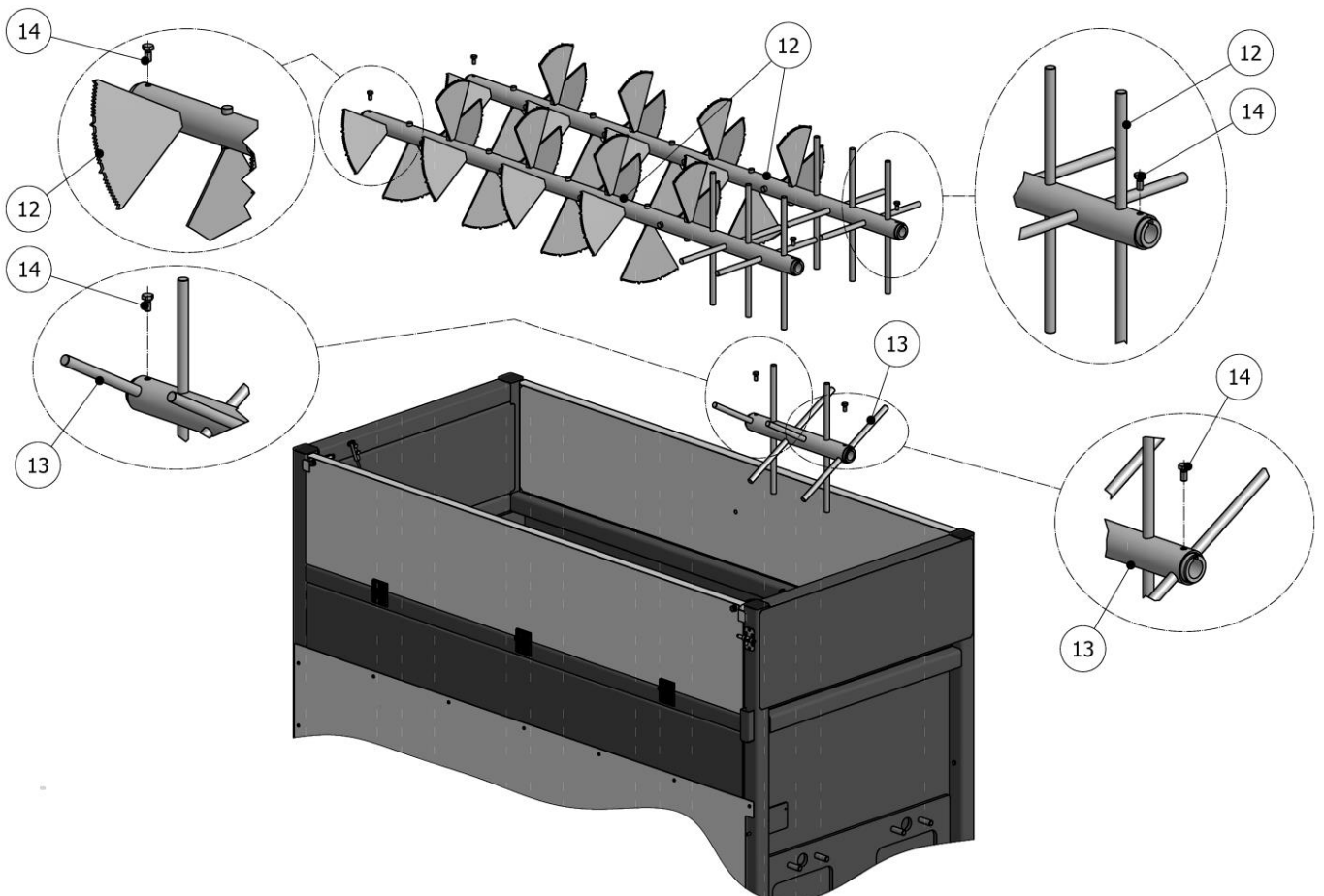


Figure 33. Carder Shaft Assembly



## Parts Identification

Table 25. Shaft List

| Pos. | Description               | Reference    | Amt. |
|------|---------------------------|--------------|------|
| 1    | Drive Blade Shaft Unit    | MQ-12009-00  | 1    |
| 1.1  | Key                       | TN-00340     | 1    |
| 1.2  | Key                       | TN-00263     | 1    |
| 2    | Driven Blade Shaft Unit   | MQ-12008-00  | 1    |
| 2.1  | Key                       | TN-00337     | 1    |
| 2.2  | Key                       | TN-00336     | 1    |
| 3    | Dispenser Cap             | MQ-12005-NG  | 1    |
| 4    | Front Central Carder Rod  | MQ-12012     | 1    |
| 4.1  | Key                       | TN-00340     | 1    |
| 4.2  | Key                       | TN-00339     | 1    |
| 5    | Front LH Carder Rod       | MQ-12012     | 1    |
| 5.1  | Key                       | TN-00340     | 1    |
| 5.2  | Key                       | TN-00339     | 1    |
| 6    | Front RH Carder Rod       | MQ-12012     | 1    |
| 6.1  | Key                       | TN-00340     | 1    |
| 6.2  | Key                       | TN-00339     | 1    |
| 7    | Rear Rod                  | MQ-12015     | 3    |
| 7.1  | Key                       | TN-00339     | 3    |
| 8    | Bearing Support           | TN-00344     | 4    |
| 9    | Bearing Support           | TN-00343     | 6    |
| 10   | Washer                    | TN-00132     | 20   |
| 11   | Hex Bolt Self-locking nut | TN-00342     | 20   |
| 12   | Upper Spindle Shaft Unit  | MQ-12010-00A | 2    |
| 13   | Central Carder Shaft Unit | MQ-12011-00A | 1    |
| 14   | Hex Bolt                  | TN-00114     | 6    |
| 15   | Front Spacer              | MQ-12070-01  | 2    |
| 16   | Rear Spacer               | MQ-12070-02  | 2    |

**MAINTENANCE KITS***Table 26. Maintenance Components List*

| Pos. | Description           | Reference | Amt. |
|------|-----------------------|-----------|------|
| 1    | Engine Oil 5L         | BI-00019  | 1    |
| 2    | Antifreeze 5L         | BI-00020  | 1    |
| 3    | Oil Filter Element    | HI-00106  | 1    |
| 4    | Diesel Filter Element | HI-00107  | 1    |
| 5    | Air Filter Element    | HI-00108  | 1    |
| 6    | Battery               | EL-00214  | 1    |
| 7    | Heater Spark Plug     | EL-00212  | 3    |

*Table 27. Spares List*




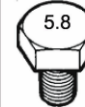
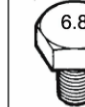
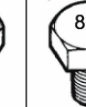


| Pos. | Description                               | Reference         | Amt. |
|------|---|-------------------|------|
| 1    | Engine-Blower Belt                        | MQ-12244          | 2    |
| 2    | Engine-Alternator Belt                    | MQ-12246          | 2    |
| 3    | Engine-Reducer Belt                       | MQ-12209          | 1    |
| 4    | Link Chain 1/2"                           | MQ-12223-MP       | 0.5m |
| 5    | Link Chain 5/8"                           | MQ-12221-MP       | 0.5m |
| 6    | Reinforced Rubber Airlock Seal (Optional) | MQ-12003-09A      | 6    |
|      | Polyurethane Airlock Seal (Standard)      | MQ-12003-09B      | 6    |
|      | Rubber Airlock Seal (Optional)            | MQ-12003-09C      | 6    |
| 7    | Cabinet Unit with Alternator DE           | EL-00213-CG-DE-NG | 1    |
|      | Cabinet Unit without Alternator DE        | EL-00213-SG-DE-NG | 1    |
|      | Cabinet Unit with Alternator NL           | EL-00213-CG-NL-NG | 1    |
|      | Cabinet Unit without Alternator NL        | EL-00213-SG-NL-NG | 1    |






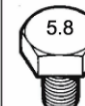
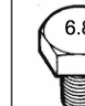





## RECOMMENDATIONS FOR MOUNTING

**Table 28. Torque for standar pitch screw**

| Calidad/<br>Dimensiones | Clase de resistencia (R)  |   |   |   |   |  |   |   |
|-------------------------|---|---|---|---|---|--|---|---|
|                         |  |  |  |  |  |  |  |  |
|                         | R>400N/mm <sup>2</sup>  |   | R>500N/mm <sup>2</sup>  |   | R>600N/mm <sup>2</sup>  | R>800N/mm <sup>2</sup>   | R>1000N/mm <sup>2</sup>   | R>1200N/mm <sup>2</sup>   |
| Diámetro                | Nm  | Nm  | Nm  | Nm  | Nm  | Nm   | Nm  | Nm  |
| M3                      | 0,5   | 0,7   | 0,6   | 0,9   | 1   | 1,4  | 1,9   | 2,3   |
| M4                      | 1,1   | 1,5   | 1,4   | 1,8   | 2,2   | 2,9  | 4,1   | 4,9   |
| M5                      | 2,3   | 3   | 2,8   | 3,8   | 4,5   | 6  | 8,5   | 10  |
| M6                      | 3,8   | 5   | 4,7   | 6,3   | 7,5   | 10   | 14  | 17  |
| M8                      | 9,4   | 13  | 12  | 16  | 19  | 25   | 35  | 41  |
| M10                     | 18  | 25  | 23  | 31  | 37  | 49   | 69  | 83  |
| M12                     | 32  | 43  | 40  | 54  | 65  | 86   | 120   | 145   |
| M14                     | 51  | 68  | 63  | 84  | 101   | 135  | 190   | 230   |
| M16                     | 79  | 105   | 98  | 131   | 158   | 210  | 295   | 355   |
| M18                     | 109   | 145   | 135   | 181   | 218   | 290  | 405   | 485   |
| M20                     | 154   | 205   | 193   | 256   | 308   | 410  | 580   | 690   |
| M22                     | 206   | 275   | 260   | 344   | 413   | 550  | 780   | 930   |
| M24                     | 266   | 355   | 333   | 444   | 533   | 710  | 1000  | 1200  |
| M27                     | 394   | 525   | 500   | 656   | 788   | 1050   | 1500  | 1800  |
| M30                     | 544   | 725   | 680   | 906   | 1088  | 1450   | 2000  | 2400  |

**Table 29. Torque for fine pitch screw**

| Calidad/<br>Dimensiones | Clase de resistencia (R)  |   |   |   |   |  |   |   |
|-------------------------|---|---|---|---|---|--|---|---|
|                         |  |  |  |  |  |  |  |  |
|                         | R>400N/mm <sup>2</sup>  |   | R>500N/mm <sup>2</sup>  |   | R>600N/mm <sup>2</sup>  | R>800N/mm <sup>2</sup>   | R>1000N/mm <sup>2</sup>   | R>1200N/mm <sup>2</sup>   |
| Diámetro                | Nm  | Nm  | Nm  | Nm  | Nm  | Nm   | Nm  | Nm  |
| M 8x1                   | 10  | 14  | 13  | 17  | 20  | 27   | 38  | 45  |
| M 10x1                  | 21  | 28  | 26  | 35  | 42  | 56   | 79  | 95  |
| M 10x1,25               | 20  | 26  | 24  | 33  | 39  | 52   | 73  | 88  |
| M 12x1,25               | 36  | 48  | 45  | 59  | 71  | 95   | 135   | 160   |
| M 12x1,5                | 38  | 45  | 42  | 56  | 68  | 90   | 125   | 150   |
| M 14x1,5                | 56  | 75  | 70  | 94  | 113   | 150  | 210   | 250   |
| M 16x1,5                | 84  | 113   | 105   | 141   | 169   | 225  | 315   | 380   |
| M 18x1,5                | 122   | 163   | 153   | 203   | 244   | 325  | 460   | 550   |
| M 18x2                  | 117   | 157   | 147   | 196   | 235   | 313  | 440   | 530   |
| M 20x1,5                | 173   | 230   | 213   | 288   | 345   | 460  | 640   | 770   |
| M 20x2                  | 164   | 218   | 204   | 273   | 327   | 436  | 615   | 740   |
| M 22x1,5                | 229   | 305   | 287   | 381   | 458   | 610  | 860   | 1050  |
| M 24x2                  | 293   | 390   | 367   | 488   | 585   | 780  | 1100  | 1300  |
| M 27x2                  | 431   | 575   | 533   | 719   | 863   | 1150   | 1600  | 1950  |
| M 30x2                  | 600   | 800   | 750   | 1000  | 1200  | 1600   | 2250  | 2700  |



## ELECTRICAL SCHEMATIC DIAGRAM

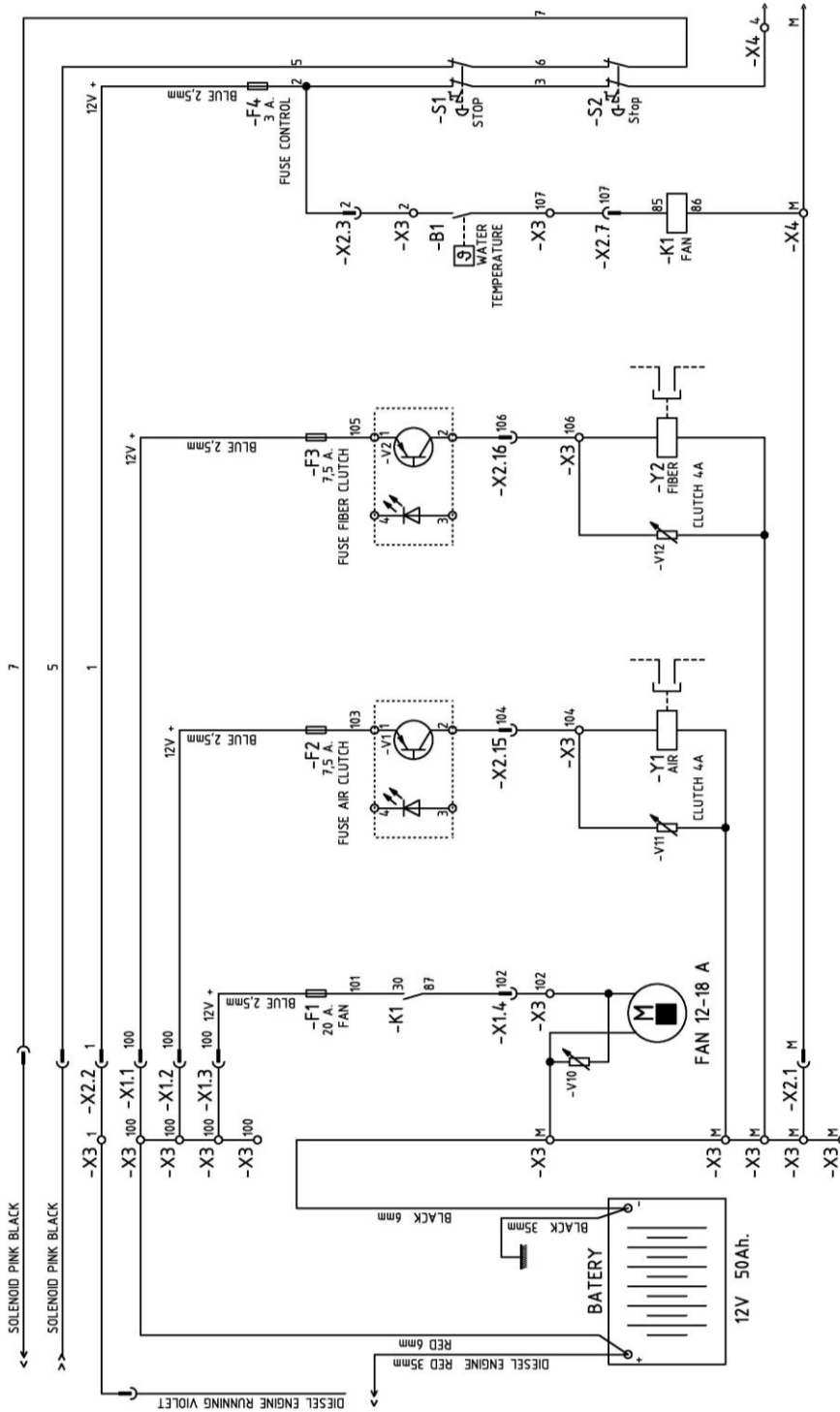


Figure 34. Electrical Schematic Diagram (page 1 of 14)

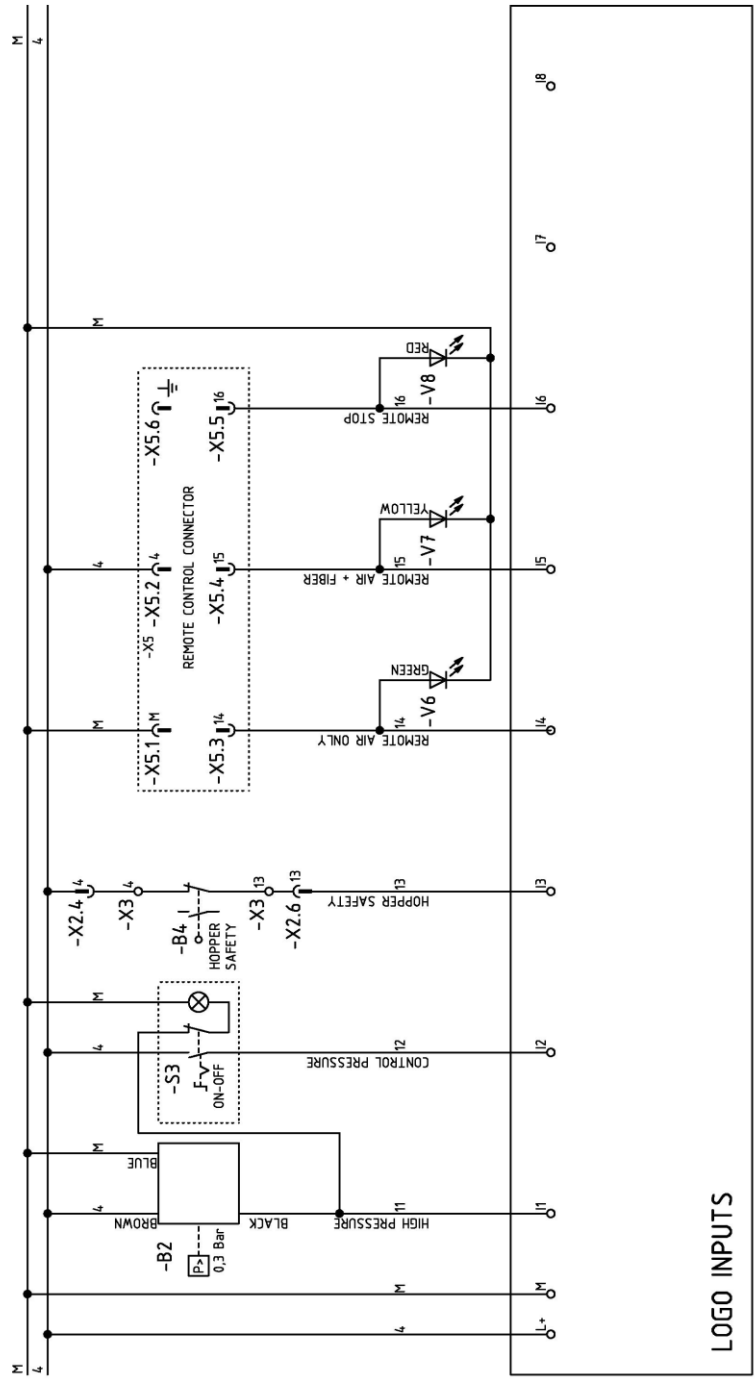


Figure 35. Electrical Schematic Diagram (page 2 of 14)



Parts Identification

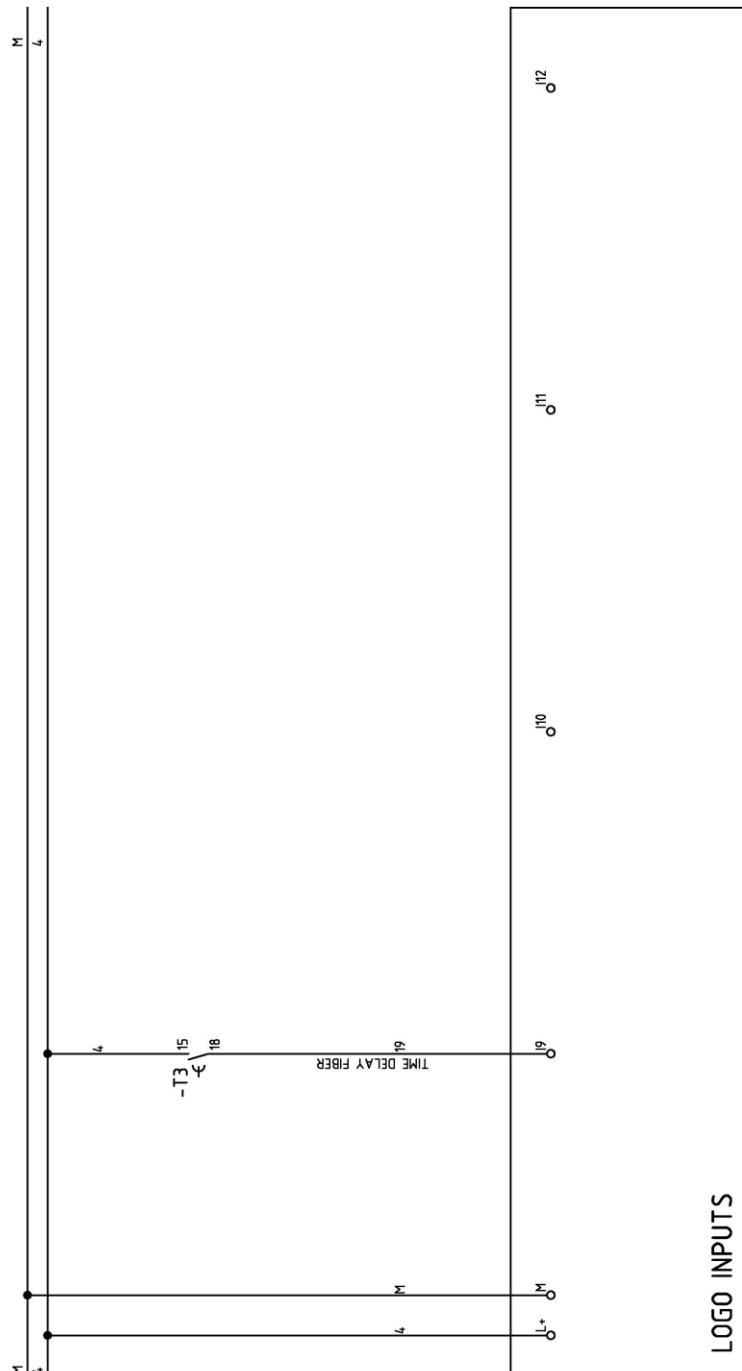


Figure 36. Electrical Schematic Diagram (page 3 of 14)

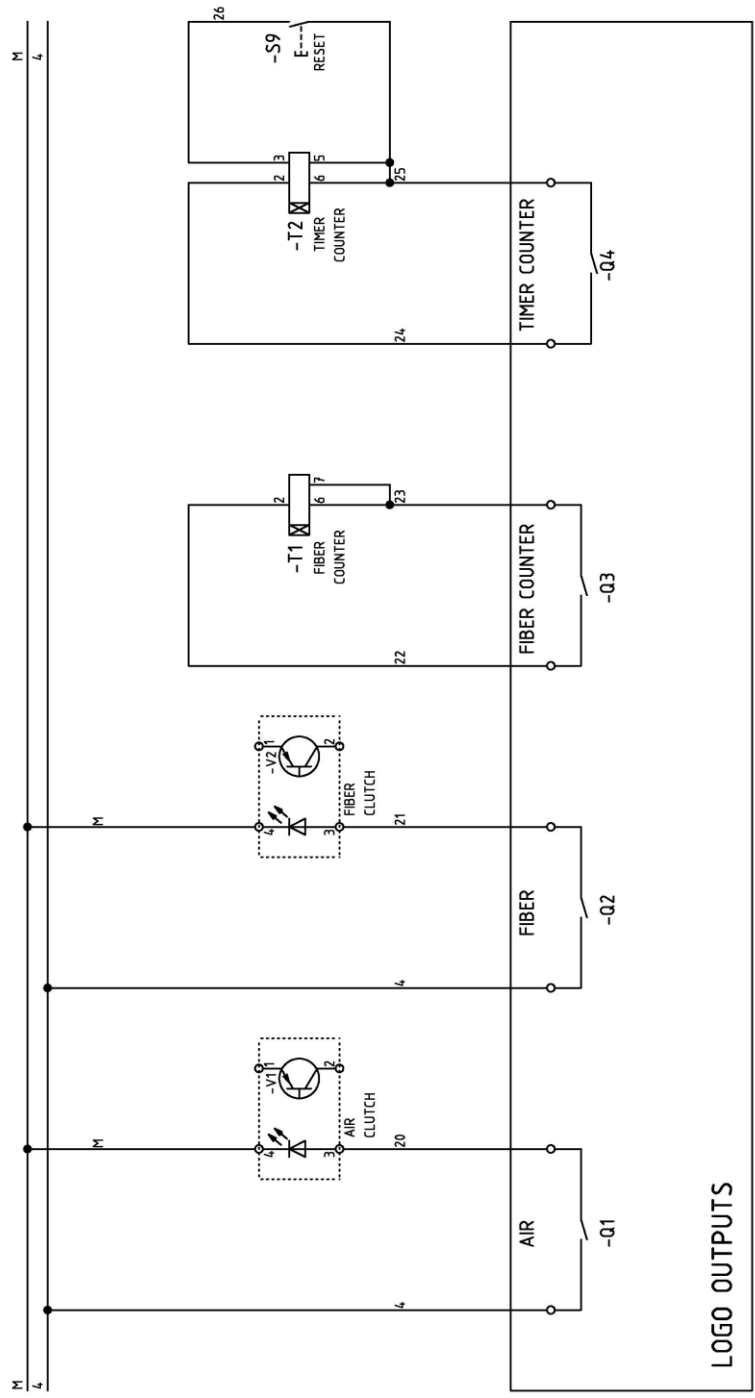


Figure 37. Electrical Schematic Diagram (page 4 of 14)



Parts Identification

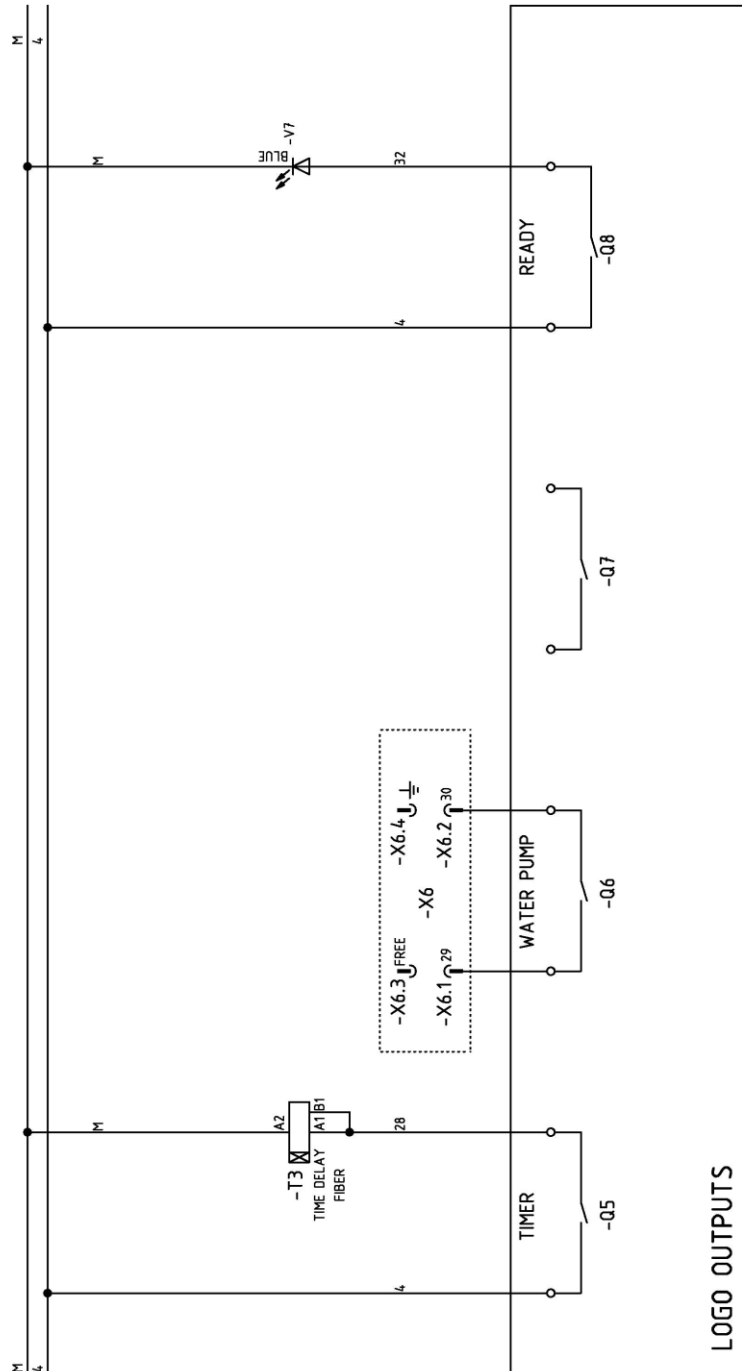


Figure 38. Electrical Schematic Diagram (page 5 of 14)

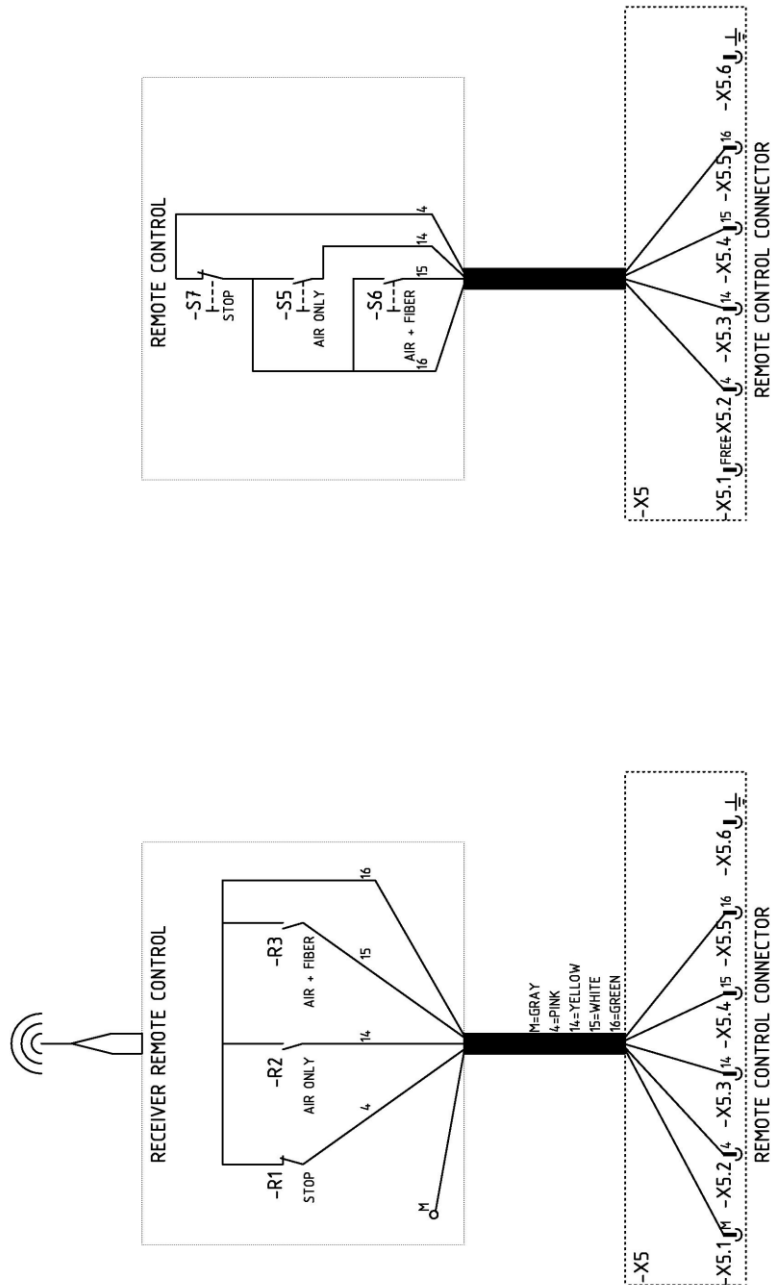


Figure 39. Electrical Schematic Diagram (page 6 of 14)



Parts Identification

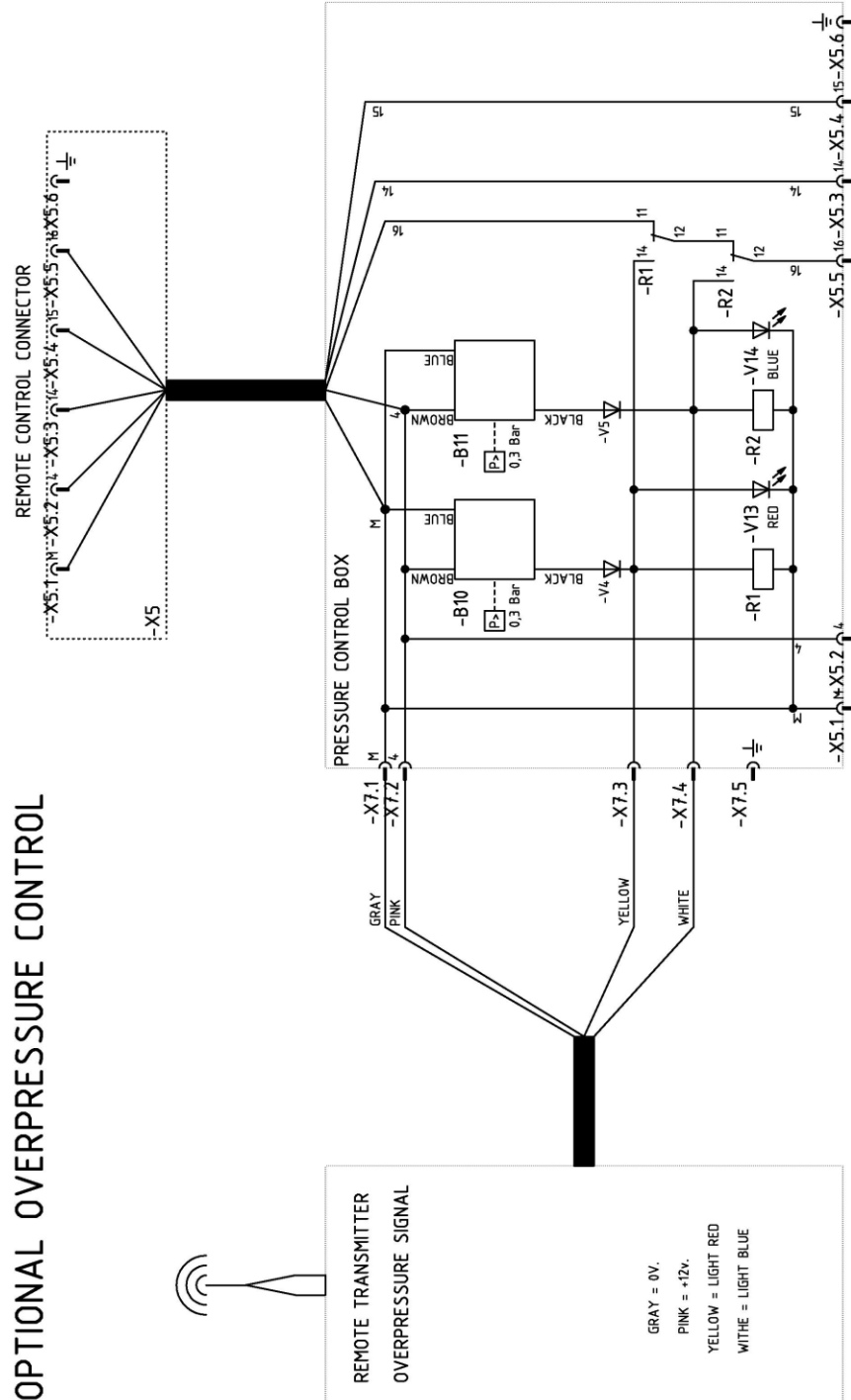


Figure 40. Electrical Schematic Diagram (page 7 of 14)



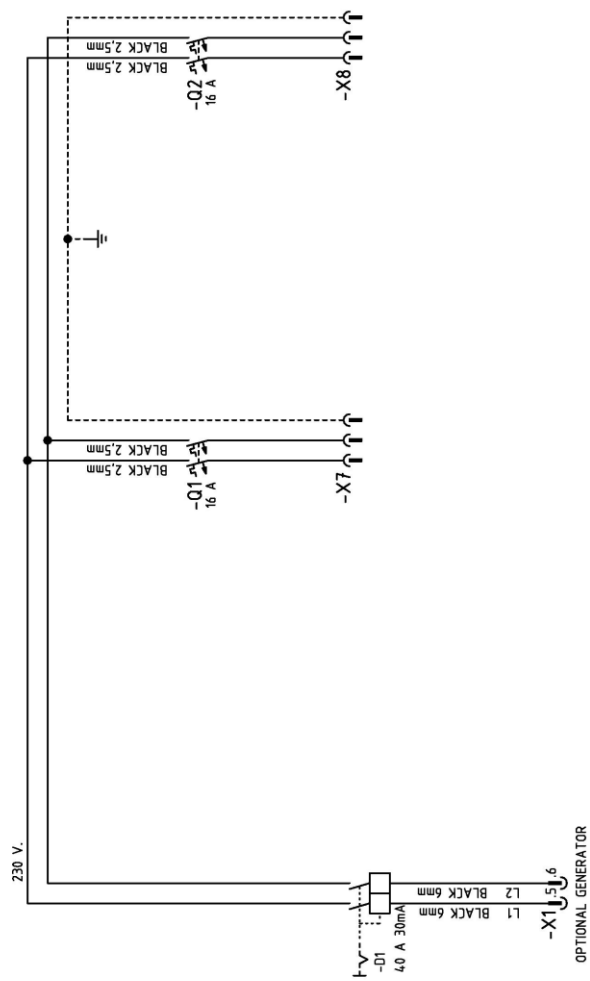


Figure 41. Electrical Schematic Diagram (page 8 of 14)



Parts Identification

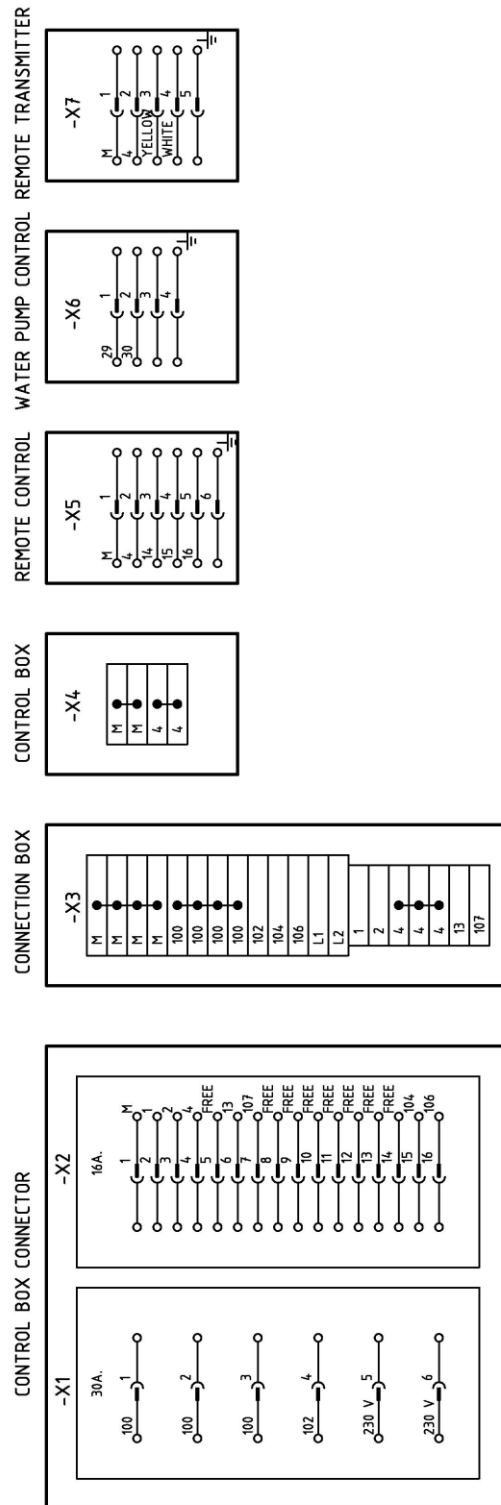
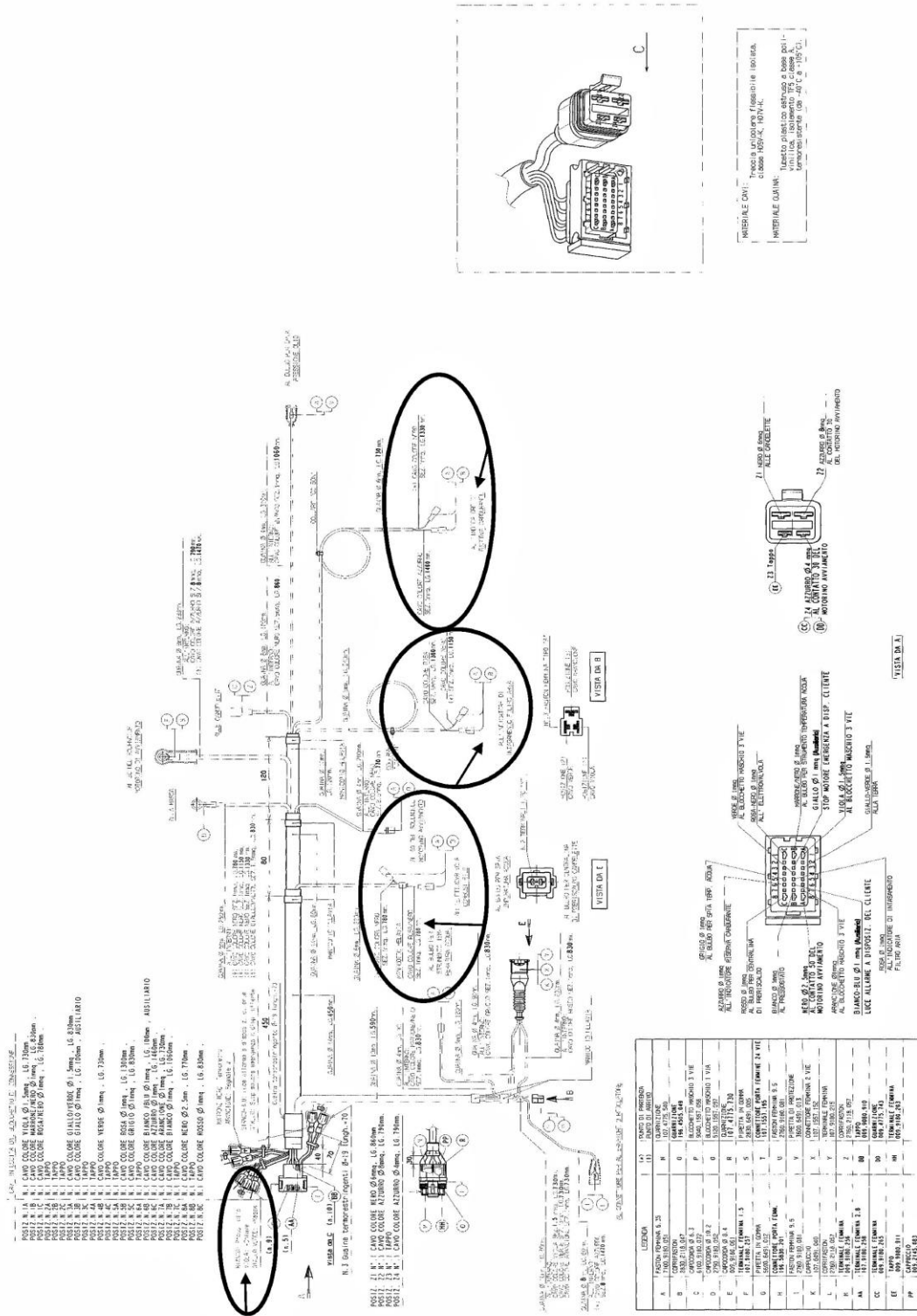


Figure 42. Electrical Schematic Diagram (page 9 of 14)



Parts Identification

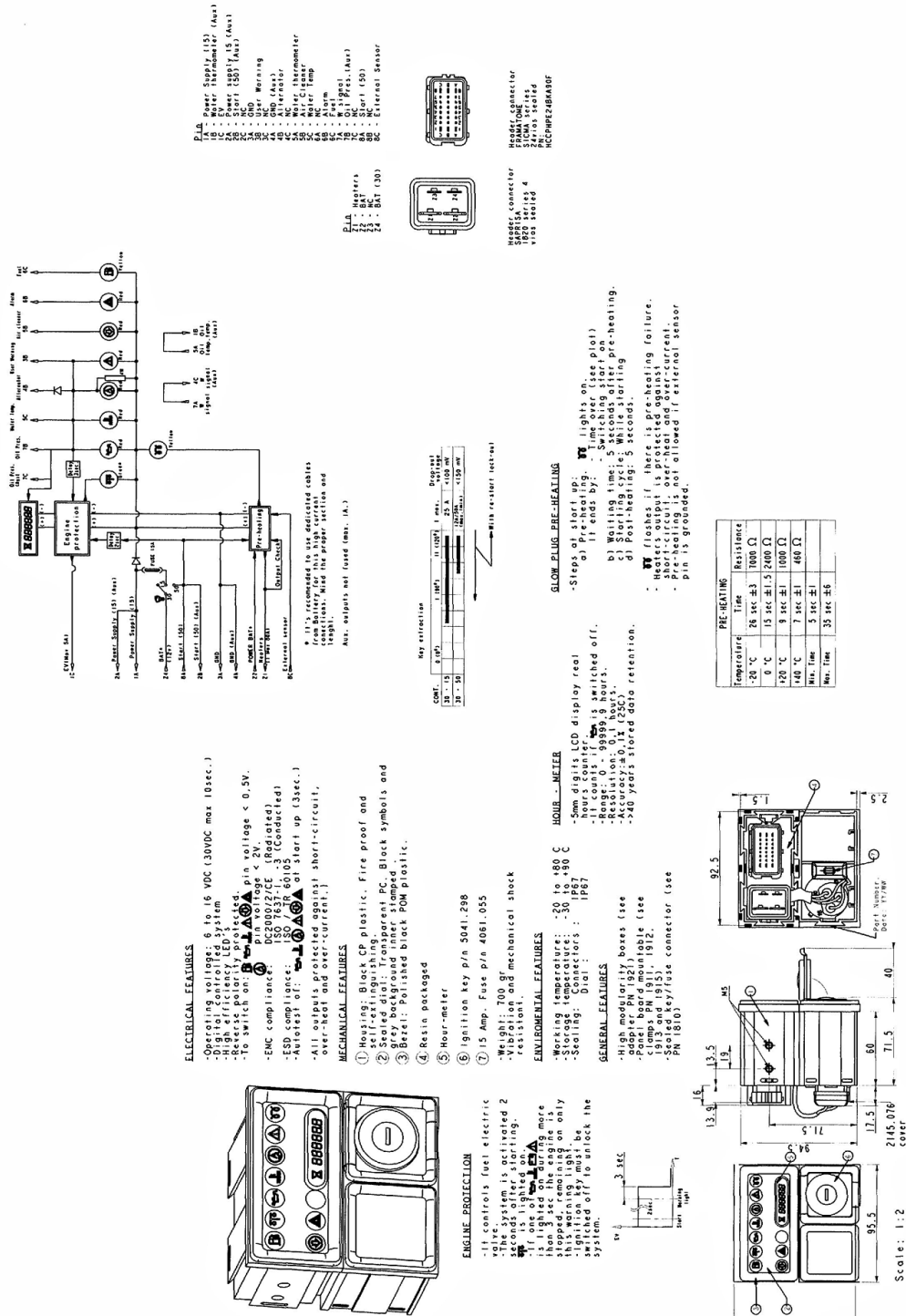


Figure 44 Electrical Schematic Diagram (page 11 of 14)

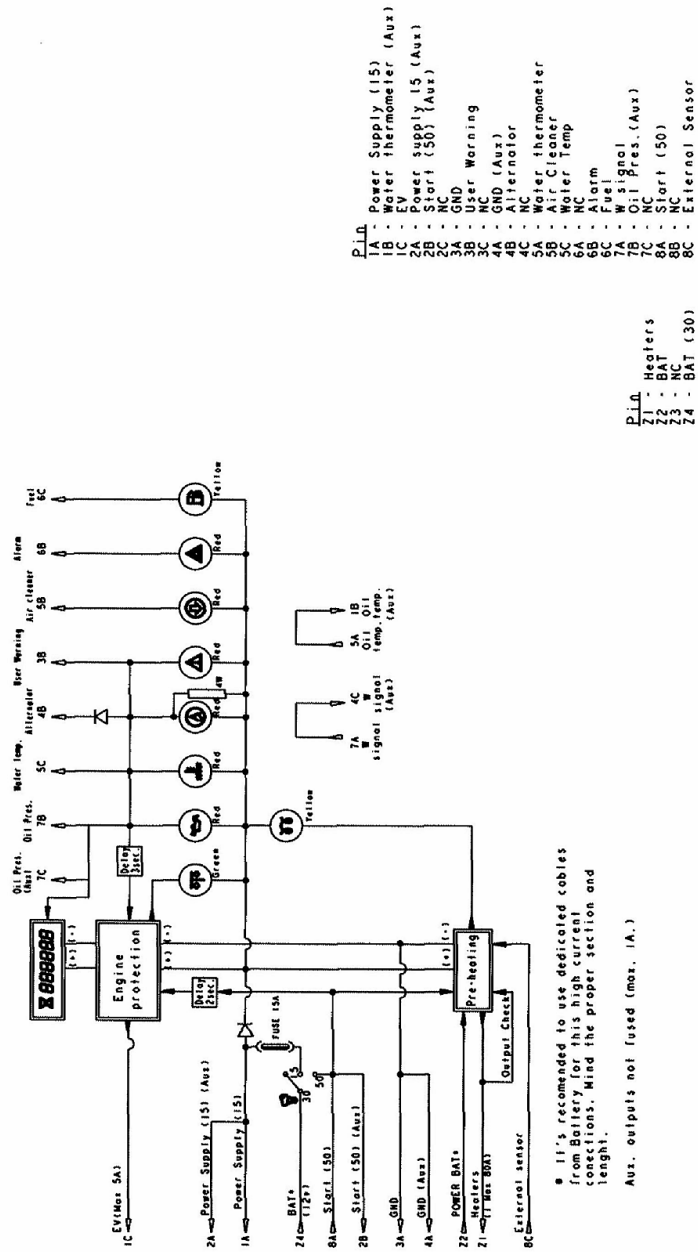


Figure 45 Electrical Schematic Diagram (page 12 of 14)



Parts Identification

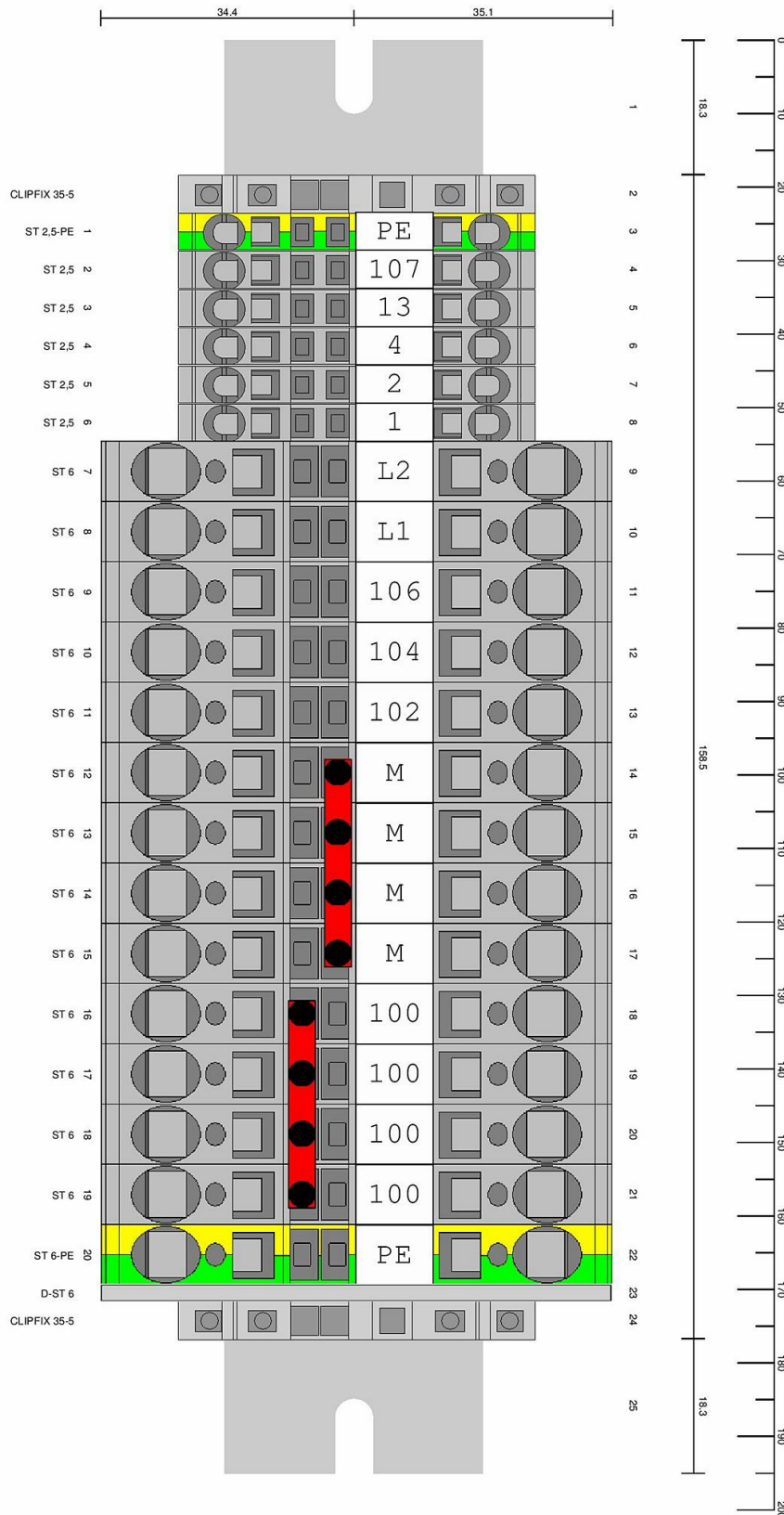


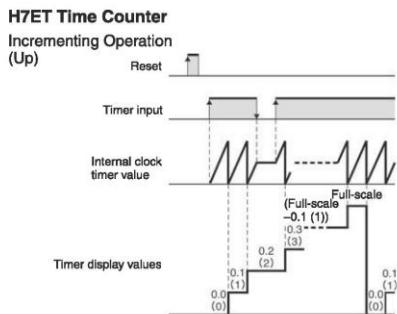
Figure 46 Electrical Schematic Diagram (page 13 of 14)



New H7ET

Operation

■ Operating Modes



Nomenclature

**A Time-range switch**  
If the time-range setting is changed, the present value will not be held and so press the Reset Key on the front panel.

| Setting (see note)               | Time range                          |                                      |
|----------------------------------|-------------------------------------|--------------------------------------|
|                                  | H7ET-N□□-□□                         | H7ET-N□□1-□□                         |
| Front panel<br>↑ Concave side    | 0.0h to 3999d23.9h                  | 0s to 999h59min59s (default setting) |
| Terminal block<br>↓ Concave side | 0.0h to 999999.9h (default setting) | 0.0min to 9999h59.9min               |

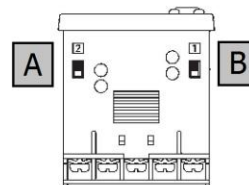
**Note:** Perform switch setting before mounting to a control panel.

**Reset Key**  
Reset the count value. Not operable under key-protect.

**Key-protect Switch B**  
The Reset Key is not operable while the key-protect switch is set to ON.

| Setting (see note)               | Key-protect           |
|----------------------------------|-----------------------|
| Front panel<br>↑ Concave side    | OFF (default setting) |
| Terminal block<br>↓ Concave side | ON                    |

|           |            |                         |
|-----------|------------|-------------------------|
| H7E7-N-B  | A -> OK    | <input type="radio"/>   |
|           | B -> NO OK | <input type="radio"/> ↓ |
| H7E7-N1-B | A -> OK    | <input type="radio"/>   |
|           | B -> NO OK | <input type="radio"/> ↓ |





Parts Identification

**Table 30. Electric Console Components List**

| Item. | Description                         | Reference   | Qty. |
|-------|-------------------------------------|-------------|------|
|       | GROUND TERMINAL BLOCK               | EL-00104-11 | 2    |
|       | PHASE TERMINAL BLOCK                | EL-00104-09 | 4    |
|       | TERMINAL BLOCK BRIDGE               | EL-00104-14 | 1    |
|       | TERMINAL BLOCK MARKING TAG          | EL-00104-19 | 4    |
|       | TERMINAL BLOCK SEPARATOR PLATE      | EL-00104-20 | 1    |
|       | FUSE HOLDER                         | EL-00128-07 | 1    |
|       | FUSE 3 A.                           | EL-00128-04 | 1    |
|       | FUSE 7,5 A.                         | EL-00128-08 | 2    |
|       | FUSE 20 A.                          | EL-00128-06 | 1    |
|       | LOGO                                | EL-00172-00 | 1    |
|       | LOGO MEMORY MODULE                  | EL-00172-01 | 1    |
|       | LOGO EXPANSION MODULE               | EL-00172-02 | 1    |
|       | MOTOR CONTROL BOARD                 | EL-00173-00 | 1    |
|       | EMERGENCY BUTTON                    | EL-00131-00 | 2    |
|       | ROTARY SWITCH 2 POSITIONS YELLOW    | EL-00131-41 | 1    |
|       | PUSH BOTTON 1 POSITION YELLOW       | EL-00131-39 | 1    |
|       | ILLUMINATING UNIT                   | EL-00131-44 | 1    |
|       | CONTACT BLOCK 1NO SCREW TERMINAL    | EL-00131-42 | 2    |
|       | CONTACT BLOCK 1NC SCREW TERMINAL    | EL-00131-43 | 3    |
|       | LED LIGHT YELLOW Ø8                 | EL-00131-23 | 1    |
|       | LED LIGHT RED Ø8                    | EL-00131-24 | 1    |
|       | LED LIGHT GREEN Ø8                  | EL-00131-25 | 1    |
|       | LED LIGHT BLUE Ø8                   | EL-00131-29 | 1    |
|       | EMERGENCY STOP SIGN Ø 22            | EL-00131-26 | 1    |
|       | ENCLOSURE FOR RECTANGULAR CONNECTOR | EL-00096-65 | 2    |
|       | FEMALE CONTACT 5 PINS               | EL-00096-37 | 1    |
|       | MALE CONTACT 3 PINS                 | EL-00096-08 | 1    |
|       | TIME COUNTER                        | EL-00163-10 | 2    |
|       | RED SPLICE TERMINAL                 | EL-00100-23 | 6    |
|       | TIMER                               | EL-00163-11 | 1    |
|       | RELAY                               | EL-00163-12 | 1    |
|       | RELAY HOLDER                        | EL-00163-13 | 1    |
|       | STATIC SOLID RELAY                  | EL-00126-08 | 2    |
|       | CABINET 800X300X155                 | EL-00218    | 1    |





## Parts Identification

| Item. | Description              | Reference   | Qty. |
|-------|--------------------------|-------------|------|
|       | BULKHEAD CONNECTOR       | EL-00095-02 | 1    |
|       | CONNECTOR 6 PINS 30 A.   | EL-00096-31 | 1    |
|       | CONNECTOR 16 PINS 16 A.  | EL-00096-33 | 1    |
|       | CONNECTOR BASE           | EL-00096-35 | 1    |
|       | RESIDUAL CURRENT CB      | EL-00108-02 | 1    |
|       | CIRCUIT BREAKER          | EL-00112-10 | 2    |
|       | POWER SOCKET 3POLES 16A. | EL-00166-04 | 2    |

**Table 31. Machine Electrical Components List**

| Item. | Description                         | Reference   | Qty. |
|-------|-------------------------------------|-------------|------|
|       | PHASE TERMINAL BLOCK                | EL-00104-06 | 11** |
|       | GROUND TERMINAL BLOCK               | EL-00104-08 | 1**  |
|       | 10-POLE TERMINAL BLOCK              | EL-00104-12 | 1**  |
|       | PHASE TERMINAL BLOCK                | EL-00104-11 | 1**  |
|       | TERMINAL BLOCK                      | EL-00105-08 | 1    |
|       | VARISTOR                            | EL-00129-02 | 3    |
|       | FEMALE CONTACT 5 PINS               | EL-00096-37 | 1    |
|       | ENCLOSURE FOR RECTANGULAR CONNECTOR | EL-00096-07 | 1    |
|       | MALE CONTACT 5 PINS                 | EL-00096-38 | 2+1* |
|       | ENCLOSURE FOR RECTANGULAR CONNECTOR | EL-00096-06 | 2+1* |
|       | FEMALE CONNECTOR 6 PINS 30 A.       | EL-00096-32 | 1    |
|       | FEMALE CONNECTOR 16 PINS 16 A.      | EL-00096-34 | 1    |
|       | METALLIC HOOD                       | EL-00096-36 | 1    |
|       | PUSH BUTTON YELLOW                  | EL-00131-18 | 1    |
|       | PUSH BUTTON GREEN                   | EL-00131-27 | 1    |
|       | PUSH BUTTON RED                     | EL-00131-19 | 1    |
|       | LEGEND HOLDER                       | EL-00131-28 | 3    |
|       | CONTACT BLOCK 1NO                   | EL-00131-20 | 2    |
|       | CONTACT BLOCK 1NC                   | EL-00131-21 | 1    |
|       | EMPTY PUSH BUTTON ENCLOSURE         | EL-00151-00 | 1    |
|       | ENCLOSURE LABEL                     | EM-00050    | 1    |
|       | ENCLOSURE LABEL                     | EM-00051    | 1    |
|       | ENCLOSURE LABEL                     | EM-00052    | 1    |
|       | HINGE SWITCH                        | EL-00020-01 | 1    |
|       | CONTROL CABLE                       | EL-00173-01 | 1    |
|       | EXTENSION CABLE                     | EL-00173-02 | 1    |



## Parts Identification

| Item. | Description                | Reference   | Qty. |
|-------|----------------------------|-------------|------|
|       | GROUND BRAIDS              | EL-00103-21 | 2    |
|       | BATTERY POST +             | EL-00100-20 | 1    |
|       | BATTERY POST -             | EL-00100-21 | 1    |
|       | RED HEAT SHRINK SLEEVING   | EL-00101-10 | 0,5m |
|       | BLACK HEAT SHRINK SLEEVING | EL-00101-02 | 0,5m |
|       | RING TERMINAL              | EL-00100-22 | 2    |
|       | BULKHEAD CONNECTOR         | EL-00088-02 | 1    |
|       | FITTING                    | EL-00087-03 | 2    |
|       | ADAPTER                    | EL-00091-05 | 1    |
|       | ADAPTER                    | EL-00091-06 | 1    |
|       | NUT                        | EL-00090-05 | 1    |
|       | CONNECTION BOX             | EL-00158-12 | 1    |
|       | TUBE                       | EL-00086-02 | 2m   |
|       | CLIPS PMA                  | EL-00089-00 | 4    |
|       | MOUNTING CLIP              | EL-00086-00 | 2m   |
|       | CABLE 3x2,5mm <sup>2</sup> | EL-00102-05 | 3m   |
|       | CABLE 2x0,5mm <sup>2</sup> | EL-00102-00 | 5m   |
|       | CABLE 2,5mm <sup>2</sup>   | EL-00103-04 | 2m   |
|       | CABLE 6mm <sup>2</sup>     | EL-00103-20 | 2m   |
|       | CABLE 35mm <sup>2</sup>    | EL-00103-22 | 3,5m |
|       | HOLDERS                    | EL-00094-00 | 11   |
|       | PLASTIC STRIP              | EL-00093-02 | 40   |
|       | FASTON TERMINAL            | EL-00100-17 | 3    |
|       | FASTON TERMINAL            | EL-00100-12 | 2    |
|       | FASTON TERMINAL            | EL-00100-19 | 2    |
|       | CABLE                      | EL-00102-07 | 1    |
|       | REMOTE                     | EL-00151-01 | 1*   |
|       | TRANSMITTER                | EL-00151-02 | 1*   |
|       | GROUND PIKE                | EL-00217-01 | 1    |
|       | GROUND PIKE CLAMP          | EL-00217-02 | 1    |
|       | BATTERY CLAMP              | EL-00217-03 | 1    |
|       | GROUND CONNECTION KIT      | EL-00217-00 | 1    |

*Parts marked with \* are optional.*

*Parts marked with \*\* are optional with Weidmüller Terminal.*



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