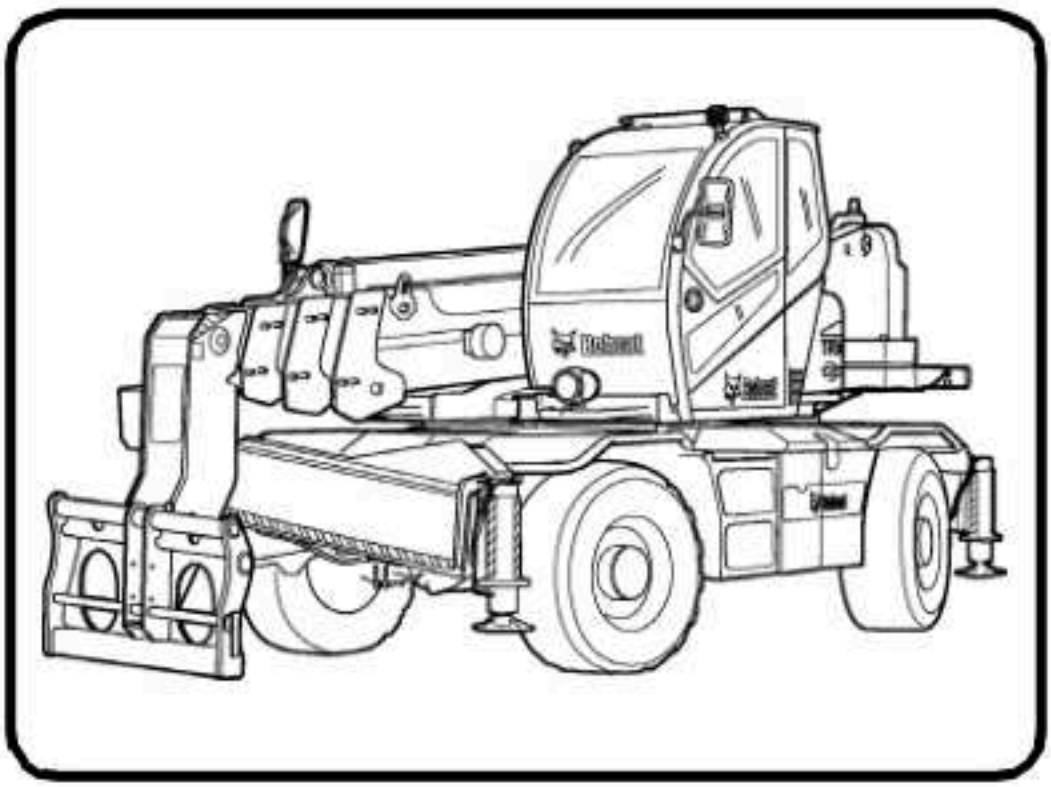
Bobcat®

Service Manual

TR35160, TR45190, TR50210, TR40250 Telescopic Handler

TR35160 - S/N LLM1590000 & Above
TR45190 - S/N HVL1540000 & Above
TR50210 - S/N HVL1550000 & Above
TR40250 - S/N HVL1560000 & Above



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Remote Control Error Codes (Cont'd)

External Error Codes (Cont'd)

E32	Error signal received from valve n° 1 (Sauer-Danfoss).	Error state for valve n° 1.	VC	The hydraulic oil distributor (Sauer-Danfoss) has sent an error message to the radio remote control: verify the hydraulic control block.
E33	Error signal received from valve n° 2 (Sauer-Danfoss).	Error state for valve n° 2.	VC	
E34	Error signal received from valve n° 3 (Sauer-Danfoss).	Error state for valve n° 3.	VC	
E35	Error signal received from valve n° 4 (Sauer-Danfoss).	Error state for valve n° 4.	VC	
E36	Error signal received from valve n° 5 (Sauer-Danfoss).	Error state for valve n° 5.	VC	
E37	Error signal received from valve n° 6 (Sauer-Danfoss).	Error state for valve n° 6.	VC	
E38	Error signal received from valve n° 7 (Sauer-Danfoss).	Error state for valve n° 7.	VC	
E39	Error signal received from valve n° 8 (Sauer-Danfoss).	Error state for valve n° 8.	VC	
E40	Communication Error (TIME-OUT) on the CAN-BUS.	CAN-BUS is not properly connected or signal missing.	VC/PWM	Check the CAN-BUS wiring is properly connected and CAN-L and CAN-H are not inverted.
E41	START attempt without OK signal from TP7.	TP7 not correctly used.	VC/PWM	Before pressing START on the radio control verify the enabling - signal from the machine.
E42	START attempt with a toggle switch (or joystick) on.	It's possible to arm the system: a toggle-switch or a joystick is on.	VC/PWM	Before pressing START on the transmitter, check all the toggle-switches and joystick: they all have to be OFF.

* An accidental inversion on the power supply damages irreversibly the system, which shows permanently the E08 error code.

** This error code can occur if there is some humidity in the receiver. In this case eliminate every spot of water by applying a delicate throw of warm air. Before closing again the receiver check the gasket under the cover so that no water can come inside. During the truck washing do not throw water-jets against the receiver box or its connections.

Internal Error Codes

CODE	DESCRIPTION	POSSIBLE CAUSES	TYPE
E50	CPU test failed.	Main base board faulty.	VC/PWM
E51	WATCHDOG test failed.	Main base board faulty.	VC/PWM
E52	INTERRUPT test failed.	Main base board faulty.	VC/PWM
E53	TIMER test failed.	Main base board faulty.	VC/PWM
E54	EXTERNAL RAM test failed.	Main base board faulty.	VC/PWM
E55	INTERNAL RAM test failed.	Main base board faulty.	VC/PWM
E56	INTERNAL PRAM test failed.	Main base board faulty.	VC/PWM
E57	FLASH memory test failed.	Main base board faulty.	VC/PWM
E58	STACK OVERFLOW detected.	Software fault.	VC/PWM
E59	Main loop time failed.	Software fault.	VC/PWM
E60	OP counter error.	Software fault.	VC/PWM
E61	Serial EEPROM checksum error.	EEPROM not programmed or faulty.	VC/PWM
E62	HW internal error.	Main base board faulty.	VC/PWM

NOTE: If error codes occur greater or equal than E50, reboot the receiver to reset the system.

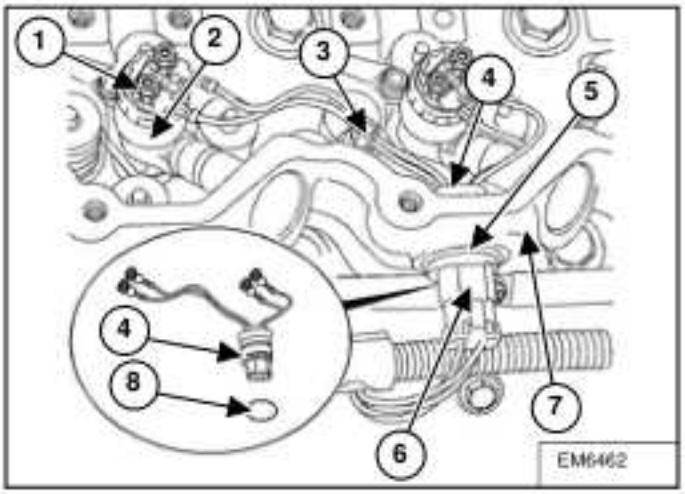
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Inlet And Exhaust Valve Springs Installation (Cont'd)

8. Remove the tool (B) **[Figure 70-100-64]**.

NOTE: Valve springs must be replaced in pairs for the inlet valve or the exhaust valve of each cylinder. If all valve springs require replacement the procedure can be carried out on two cylinders at the same time. The procedure can be carried out on the following pairs of cylinders. 1 with 4 and 2 with 3. Ensure that all of the valve springs are installed before changing from one pair of cylinders to another pair of cylinders.

Figure 70-100-65



9. Perform the following steps in order to install the harness assemblies for the electronic unit injectors:

- Ensure that harness assembly (Item 4) and the bore in the valve mechanism cover base (Item 7) **[Figure 70-100-64]** are clean and free from damage.
- Use tool (D) to lubricate a new O-ring seal. Install the new O-ring seal (Item 8) onto harness assembly (Item 4) **[Figure 70-100-64]**.
- From the inside of the valve mechanism cover base (Item 7), push harness assembly (Item 4) **[Figure 70-100-64]** into the valve mechanism cover base.
- Use tool (A) to install the circlip (Item 5) **[Figure 70-100-64]**.
- Connect plug (Item 6) to harness assembly (Item 4) **[Figure 70-100-64]**.
- Use a deep socket to install connections (Item 1) to the electronic unit injectors (Item 2) **[Figure 70-100-64]**. Use tool (E) to tighten the connections to a torque of 22 in.-lb. (2,5 N•m).
- Install a new cable tie (Item 3) **[Figure 70-100-64]**.

NOTE: Ensure that the cable ties conform to the Perkins specification.

10. Restore the electrical supply to the engine.

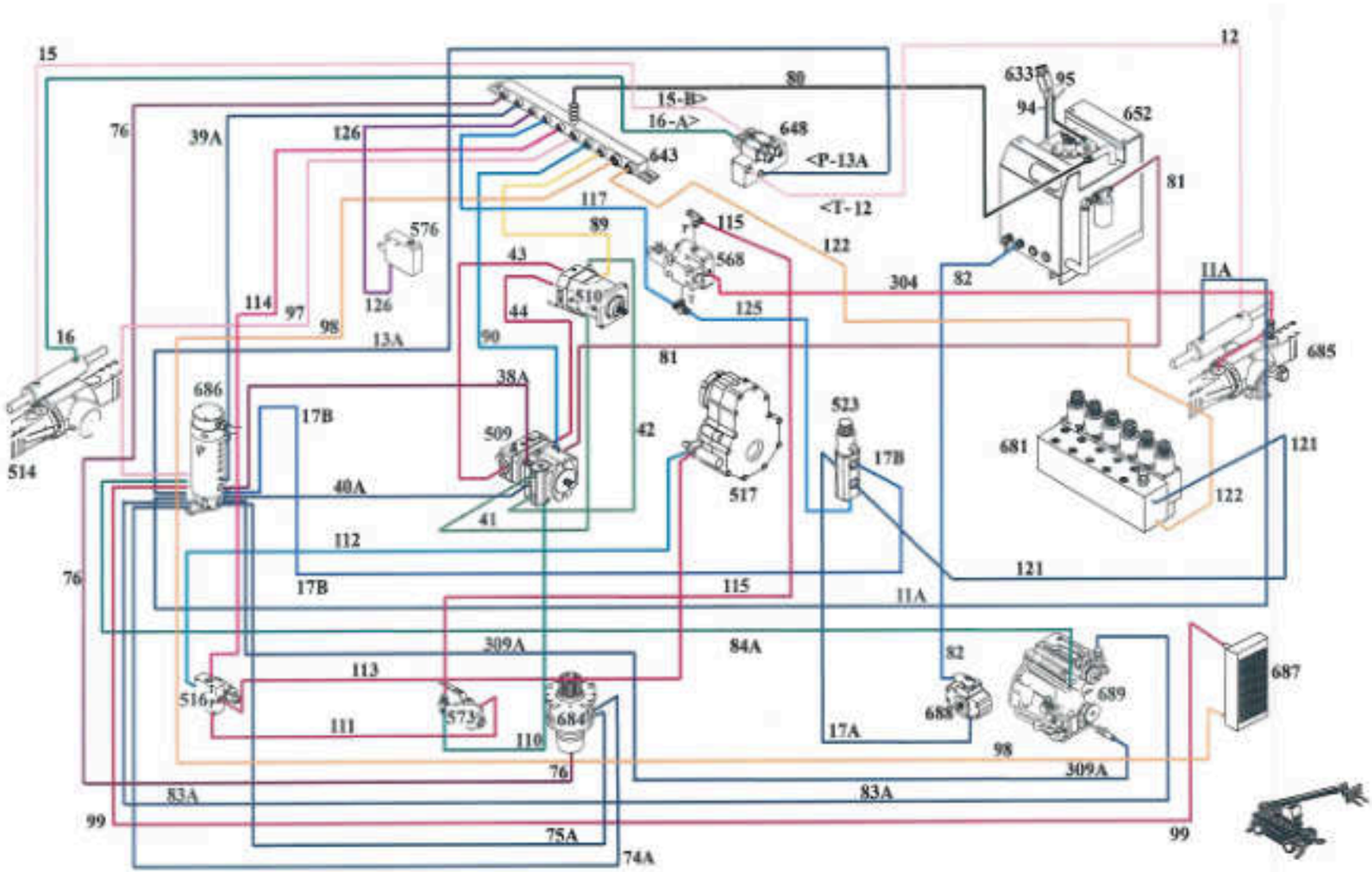
Install the rocker shaft assembly. (See "Rocker Shaft And Pushrod Installation" on page 70-100-23.)

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Machine Dimension (Cont'd)

	TR35160	TR45190	TR50210	TR40250
A	116.1 in. (2950 mm)	116.1 in. (2950 mm)	127.9 in. (3250 mm)	127.9 in. (3250 mm)
B	192.1 in. (4880 mm)	206.7 in. (5250 mm)	223.6 in. (5680 mm)	236.2 in. (6000 mm)
C	257.1 in. (6530 mm)	266.1 in. (6760 mm)	281.5 in. (7150 mm)	314.9 in. (8000 mm)
D	118.1 in. (3000 mm)	118.9 in. (3020 mm)	119.3 in. (3030 mm)	118.9 in. (3020 mm)
E	36.2 in. (920 mm)	38.6 in. (980 mm)	38.6 in. (980 mm)	38.6 in. (980 mm)
F	75.6 in. (1920 mm)	75.6 in. (1920 mm)	75.6 in. (1920 mm)	75.6 in. (1920 mm)
G	93.7 in. (2380 mm)	93.7 in. (2380 mm)	93.7 in. (2380 mm)	93.7 in. (2380 mm)
H	150.4 in. (3820 mm)	174.0 in. (4420 mm)	185.4 in. (4710 mm)	185.4 in. (4710 mm)
I	240.2 in. (6100 mm)	214.6 in. (5450 mm)	228.7 in. (5810 mm)	243.1 in. (6175 mm)
J	66.9 in. (1700 mm)	66.9 in. (1700 mm)	77.9 in. (1980 mm)	77.9 in. (1980 mm)
K	174.4 in. (4430 mm)	174.4 in. (4430 mm)	187.0 in. (4750 mm)	187.0 in. (4750 mm)
L	187.0 in. (4750 mm)	188.6 in. (4790 mm)	201.9 in. (5130 mm)	201.9 in. (5130 mm)

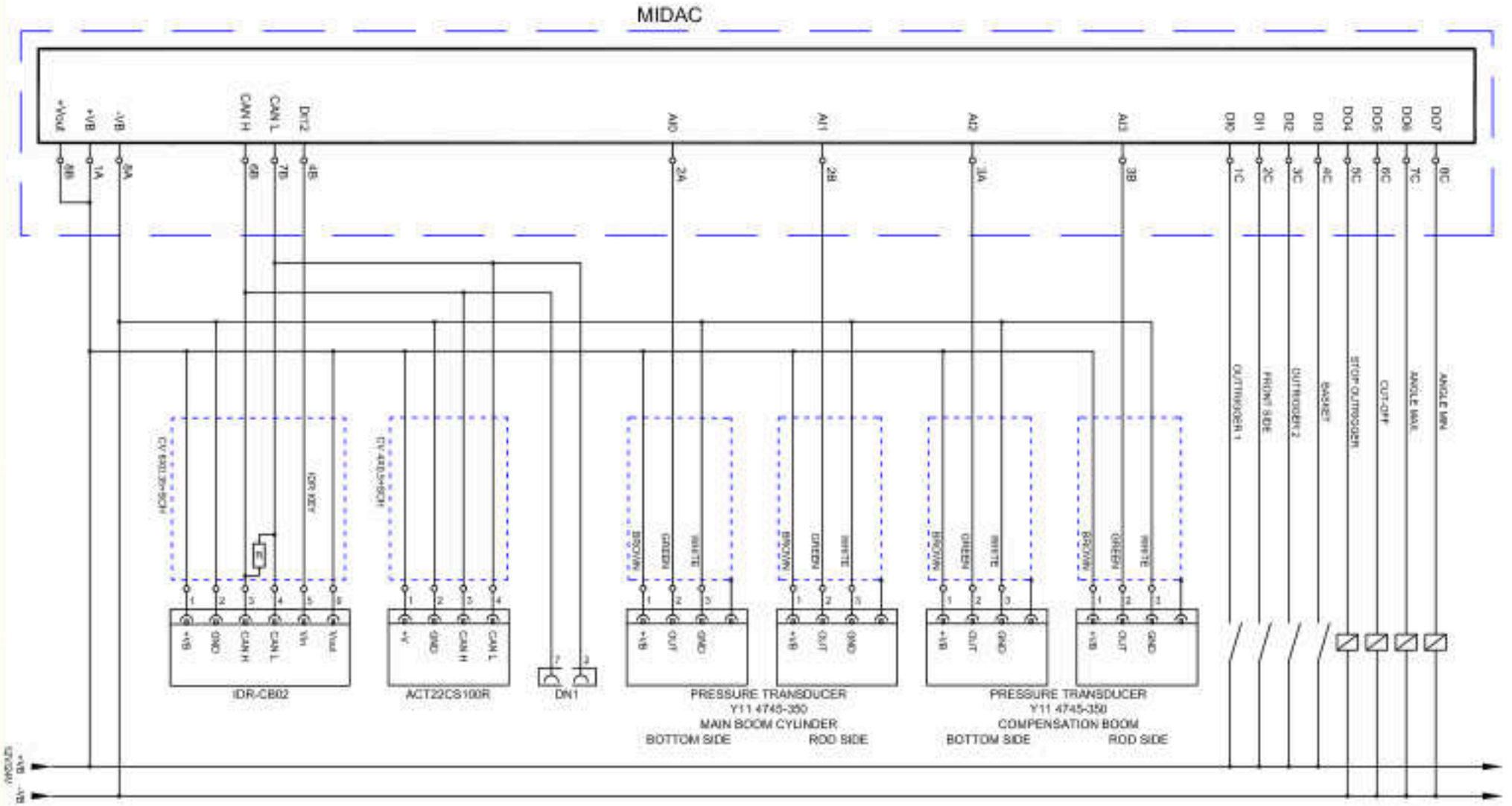
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Anti Tipping Device - Inputs And Outputs

Rev No.	Revision Note:	Date:	Signature:	Check:



NOTE:
R : 120 Ohm
DN1: CONNETTORE DIAGNOSTICA CAN BUS

DESIGNED BY:	CHECKED BY:	APPROVATO DA:	FILE NAME:	DATE:	SCALE:
SIMONE P.			C1.dwg	10/11/06	

ELETRONICA INDUSTRIALE

GROUP:	MIDMAC-ST02
NAME:	EXTERNAL WIRINGS
DRAWING NUMBER:	MIDMAC-ST.02.C1
MOD.	
SHEET:	1/1

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1	2	3	4	5

Nome/Item	Descrizione/Description	Fg/Sh
A65	CENTRALINA PRERISCALDO	15
A74	ACCELERATORE ELETTRONICO	14
B23a	TERMOCONTATTO ACQUA MOTORE	14
B23b	TERMISTORE CANDELETTE	14
B24	SENSORE INDICATORE LIVELLO CARBURANTE	13
B23as	TERMOSTATO STRUMENTO TEMPERATURA ACQUA	13
B26	PRESSOSTATO OLIO MOTORE	13
B27	MICRO SEDILE	14
B28	PRESSOSTATO FRENO	4.4
B31	PRESSOSTATO ACCUMULATORE	15
B4	MICRO STABILIZZATORE POSTERIORE	23
B61	TERMISTORE PRERISCALDO FILTRO	12
B63	MICRO STABILIZZATORE ANTERIORE	23
B64	SENSORE DI VELOCITA'	32
B79	PRESSOSTATO LIQUIDO ACCELERATORE	14
E1	Faro lavoro post. dx	7.3
E2	Faro lavoro ant. dx	7.2
E4	Faro lavoro ant. sx	7.2
E7	PLAFONIERA	9.1
E18	Faro lavoro post. sx	7.2
E22	FANALE POSTERIORE DESTRO	4.1
E23	FANALE POSTERIORE SINISTRO	4.1
E24	LUCE TARGA	4.2
E25	FARO ANTERIORE DESTRO	4.2
E26	FARO ANTERIORE SINISTRO	4.3
E27	GIROFARO	6.2
F1	FUSIBILE STABILIZZATORI 15A	3.3
F2	FUSIBILE AUTORADIO 3A	9.2
F3	FUSIBILE BUZZER E LUCE DI RETROMARCIA 5A	2.2
F4	FUSIBILE SELETTORE MARCIA LENTA/VELOCE 7.5A	2.2
F5	FUSIBILE INTERRUTTORE COMANDO EL. OPZIONALE 5A	8.2
F6	FUSIBILE INTERRUTTORE ACCELERATORE 7.5A	3.4
F7	FUSIBILE SEDILE PNEUMATICO 15A	8.5
F8	FUSIBILE MARCIA MECCANICA 5A	4.5
F9	FUSIBILE BLOCCO ASSALE 10A	2.4
F10	FUSIBILE ALIMENTAZIONI SPIE INTERRUTTORI	2.5
F11	FUSIBILE ALIMENTAZIONE DEVIO LUCI E LUCI STOP 10A	4.1
F12	FUSIBILE SENSORI 3A	9.2
F13	FUSIBILE INTERRUTTORE ELETTROVALVOLE TESTA BRACCIO OPTIONAL + ALIM. LINEA OPTIONAL 7.5A	2.4
F14	FUSIBILE LUCI DI POSIZIONE 5A	4.1
F15	FUSIBILE LUCI DI POSIZIONE 5A	4.1
F16	FUSIBILE LUCI ABBAGLIANTI 10A	4.2
F17	FUSIBILE CLAXON 10A	4.4
F18	FUSIBILE LUCI ANABBAGLIANTI 10A	4.2
F19	FUSIBILE TERGICRISTALLO ANTERIORE 15A	6.4
F20	FUSIBILE TERGICRISTALLO POSTERIORE 15A	6.2
F21	FUSIBILE OPTIONAL 15A	9.1
F22	FUSIBILE FARI LAVORO ANTERIORE 20A	7.1
F23	FUSIBILE FARI LAVORO POSTERIORE 20A	7.1
F24	FUSIBILE OTIONAL 7.5A	7.1
F25	FUSIBILE VENTOLA RISCALDAMENTO 15A	7.1
F26	FUSIBILE FRENO DI PARCHEGGIO + DEVIO MARCE 7.5A	2.2
F27	FUSIBILE ARRESTO MOTORE + MICRO SEDILE 7.5A	1.4
F28	FUSIBILE WARNING 7.5A	4.3
F29	FUSIBILE GIROFARO 7.5A	6.2
F30	FUSIBILE AUTORADIO, PLAFONIERA E CARICABATTERIA RADIOCIAMMIDO 5A	9.2
F31	FUSIBILE OPTIONAL 10A	4.4
F32	FUSIBILE PRESA DI CORRENTE 7.5A	6.4
F33	FUSIBILE SELETTORE STERZO 7.5A	8.4
F34	FUSIBILE CONDIZIONATORE 15A	7.1
F35	FUSIBILE OPTIONAL 15A	1.5
F36	FUSIBILE ALIMENTAZIONE STRUMENTO 3A	1.3
F61	FUSIBILE CESTELLO E RADIOCOMANDO 15A	10.1
F71	PREDISPOSIZIONE FUSIBILE ACCELERATORE	1.3
F72	PREDISPOSIZIONE FUSIBILE ALIM. +30	1.3
FG1	FUSIBILE ALTERNATORE 80A	1.1
FG2	FUSIBILE GENARALE 80A	1.1
FG4	FUSIBILE RELE'AVVIAMENTO 40A	1.1
G1	BATTERIA	1.1
G2	ALTERNATORE	1.1
H2	BUZZER DI RETROMARCIA	2.2
HA1	BUZZER ALLARME STRUMENTO	1.4
HA3	CLAXON	4.4
HA4	ALTOPARLANTE SX	9.3
HA5	ALTOPARLANTE DX	9.3
K1	RELE' LUCI ABBAGLIANTI	4.2
K1M	RELE' AVVIAMENTO	1.2
K2	RELE' CLAXON	4.4
K2M	RELE' PRERISCALDO FILTRO	1.2
K3	RELE' STACCO TRASMISSIONE	2.3
K3M	RELE' TERMOAVVIATORE	1.4
K3PG	RELE' ALIMENTAZIONE +15	1.2
K4	RELE' BUZZER E LUCE RETROMARCIA	2.2
K6	TEMPORIZZATORE MICRO SEDILE	1.4
K7	RELE' LUCI ANABBAGLIANTI	4.2
K8	RELE' ANTIRIBALTAMENTO DEDALUS	3.4
K9	RELE' MARCIA VELOCE IDRAULICA	2.2
K10	RELE' RETROMARCIA	2.1
K12	RELE' INIBIZIONE STABILIZZATORI CON CESTELLO INSERITO	3.3
K13	RELE' INIBIZIONE STABILIZZATORI DA SENSORE OPIONALE	10.3
K14	RELE' BLOCCO PONTE AUTOMATICO	2.4
K15	RELE' MARCIA AVANTI	2.1
K17	RELE' SELETTORE STERZO	8.4
K18	RELE' INIBIZIONI DA SENSORE SFILO/SOLLEVAMENTO	3.3
K19	RELE' LIMITAZIONE LIVELLAMENTO	3.4
K20	RELE' SPIE MARCE MECCANICHE	4.4
K21	INTERMITTENZA	4.3
K5	RELE' CONSENSO AVVIAMENTO CON MARCIA IN FOLLE	1.5
K60	RELE' ESCLUSIONI ASSORBIMENTO UTILIZZATORI	1.1
K73	RELE' ACCELERATORE (OPZIONALE)	1.4
K11	RELE' CONSENSO AVVIAMENTO DA CABINA CON OPERATORE SEDUTO	1.4

Nome/Item	Descrizione/Description	Fg/Sh
K16	RELE' DI FREQUENZA MOTORINO IN MOTO	1.4
KR	RELE' CONSENSO MANIPOLATORE	6.1
K401	CENTRALINA VARIAZIONE GIRI OPTIONAL	3.1
KS2	Rele 3^ velocita ventilazione	7.4
M1	MOTORINO DI AVVIAMENTO	1.1
M2	MOTORE TERGICRISTALLO POSTERIORE	6.3
M7	MOTORE TERGICRISTALLO ANTERIORE	6.5
M8	POMPA LAVACRISTALLO POSTERIORE	6.3
M9	LAVACRISTALLO ANTERIORE	4.3
M10	MOTORE VENTILATORE	7.3
M33	Motore condizionatore	7.1
P1	STRUMENTO	1.2
R5	PRERISCALDO FILTRO	1.2
R1	Resistore	10.4
R510	Resistore	1.4
S0	STACCA BATTERIA	1.1
S1	int. emergenza	4.2
S2	int. ventola	7.3
S5	int. tergi posteriore	6.2
S6	int. faro lavoro posteriore	7.3
S8	int. cambio marcia	4.4
S9	int. livellamento	3.1
S11	int. ev. testa braccio opt.	8.3
S12	int. blocco ponte manuale	2.3
S13	int. stabilizzatore ant. sx	5.2
S14	int. stabilizzatore ant. dx	5.3
S15	int. faro girevole	6.1
S16	int. esclusione antiribaltamento	2.4
S17	int. stabilizzatore post. sx	5.4
S18	int. stabilizzatore post. dx	5.5
S20	int. aria condizionata	7.1
S21	int. freno di parcheggio	2.2
S22	int. selettore sterzo	8.1
S25	Pressostato filtro olio idraulico	1.3
S28	int. tergi anteriore	6.3
S34	MICRO MARCIA MECCANICA INSERITA	2.3
S35	PRESSOSTATO 2° MARCIA MECCANICA INSERITA	4.4
S37	DEVIO MARCE	2.1
S38	MICRO INCHING	4.5
S39	MICRO LUCI STOP	4.1
S40	DEVIO LUCI-FRECCE	4.1
S43	SENSORE BLOCCO ASSALE	9.4
S44	SENSORE RIDUZIONE VELOCITA' DI ROTAZIONE IN FINECORSA	9.3
S48	int. faro lavoro anteriore	7.2
S50	INTERRUTTORE CONSENSO STABILIZZATORI	6.1
S51	int. trave piede	5.1
S52	SENSORE DI PROSSIMITA' CABINA ALLINEATA	9.3
S53	SENSORE DI PROSSIMITA' CABINA BLOCCATA	9.3
S103	int. comando elettrico opt.	8.2
S104	INTERRUTTORE ACCELERATORE	3.2
S105	SELETTORE DISCESA STABILIZZATORE	6.2
S106.1	SELETTORE SALITA STABILIZZATORE	6.2
S107	SELETTORE MOVIMENTO TRAVE	6.2
S108	SELETTORE MOVIMENTO PIEDE	6.2
S106	int. verif. allineamento ruote opt.	8.2
S110	RADIO	10.1
S111	Emergenza	3.3
S113	INTERRUTTORE FORCHE	3.4
S114	INTERRUTTORE ARGANO	3.4
S115	INTERRUTTORE CESTELLO	3.4
S116	INTERRUTTORE RPM	3.4
X44	BY PASS BRACCIO BASSO	4.3
X54	PRESA DI CORRENTE	6.4
Y0	ELETTROVALVOLA ARRESTO MOTORE	1.2
Y1	ELETTROVALVOLA MARCIA AVANTI	2.1
Y2	ELETTROVALVOLA RETROMARCIA	2.2
Y7	ELETTROVALVOLA DISCESA STABILIZZATORE ANTERIORE DESTRO / PIEDE STABILIZZATORE ANTERIORE DESTRO	5.3
Y9	ELETTROVALVOLA DISCESA STABILIZZATORE ANTERIORE SINISTRO / PIEDE STABILIZZATORE ANTERIORE SINISTRO	5.2
Y10	ELETTROVALVOLA SALITA STABILIZZATORE POSTERIORE DESTRO / PIEDE STABILIZZATORE POSTERIORE DESTRO	5.4
Y12	ELETTROVALVOLA SALITA STABILIZZATORE POSTERIORE SINISTRO / PIEDE STABILIZZATORE POSTERIORE SINISTRO	5.3
Y14	ELETTROVALVOLA GENERALE STABILIZZATORI / SELEZIONE DISCESA STABILIZZATORI PEGASUS 18/21 mt	5.1
Y15	ELETTROVALVOLA BLOCCO PONTE POSTERIORE DX	2.4
Y16	ELETTROVALVOLA BLOCCO PONTE POSTERIORE SX	2.5
Y17	ELETTROVALVOLA STERZO	8.1
Y18	ELETTROVALVOLA STERZO	8.2
Y19	ELETTROVALVOLA STERZO	8.1
Y20	ELETTROVALVOLA STERZO	8.2
Y21	ELETTROVALVOLA 2° MARCIA MECCANICA HURT	4.5
Y22	ELETTROVALVOLA 1° MARCIA MECCANICA HURT	4.5
Y23	ELETTROVALVOLA FRENO DI PARCHEGGIO	2.3
Y36	ELETTROVALVOLA SELEZIONE SALITA STABILIZZATORI PEGASUS 18/21 mt	5.1
Y99	ELETTROVALVOLA STABILIZZATORI	5.5
X45	CONNETTORE Linea cestello	10
X46	CONNETTORE Linea cestello	10
X47	CONNETTORE Linea cestello	10
X4	CONNETTORE Linea opt	2
X1	CONNETTORE INTERFACCIA L. POSTO GUIDA-L. CRUSCOTTO SX	
X1	CONNETTORE A CRUSCOTTO 386	10
X12	CONNETTORE INTERFACCIA L. POSTO GUIDA-L. CRUSCOTTO DX	
X13	CONNETTORE INTERFACCIA CENTRALINA RELE' FUSIBILI	
X14	CONNETTORE INTERFACCIA CENTRALINA RELE' FUSIBILI	
X15	CONNETTORE INTERFACCIA L. POSTO GUIDA- L. CABINA SUPERIORE	
X19	CONNETTORE INTERFACCIA L. POSTO GUIDA-L. CRUSCOTTO DX	
X2	CONNETTORE INTERFACCIA L.POSTO GUIDA - L. CRUSCOTTO SX	
X20	CONNETTORE INTERFACCIA CENTRALINA RELE' FUSIBILI	
X21	CONNETTORE INTERFACCIA L.POSTO GUIDA- GIUNTO	
X22	CONNETTORE INTERFACCIA CENTRALINA RELE' FUSIBILI	
X23	CONNETTORE INTERFACCIA L. POSTO GUIDA-L. CRUSCOTTO DX	
X24a	CONNETTORE ALIM. OPTIONAL	9
X25	CONNETTORE INTERFACCIA L. POSTO GUIDA-L. CRUSCOTTO DX	
X26	CONNETTORE INTERFACCIA CENTRALINA RELE' FUSIBILI	

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NAME		TR 35160	CHECKED ANDREA	OF 12
DIAGRAM REF. E25800-038 REV. b	ADDAX REV. 02		DATE 19/03/10	

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