CAT Lift Trucks

Operation & Maintenance Manual

NR14K
NR14KE
NR14XE
NR16K
NR16KN
NR20K
NR25KH

7 PEDAL BRAKING

- ANALOG: the mechanical brake pedal has a switch and a potentiometer installed. When the accelerator is released and the pedal brake is pushed the inverter performs an electrical braking whose intensity is proportional to the brake pedal potentiometer. The minimum intensity is estabilished by the "Release braking" parameter, when the brake pedal is slightly pressed (brake switch close but brake potentiometer at the minimum). The maximum intensity is established by the "Pedal braking" parameter when the brake pedal is fully pressed (brake potentiometer at the maximum). In the middle positions, the electrical braking intensity is a linear function between minimum and maximum intensity.
- DIGITAL: The truck does not have a potentiometer installed on the mechanical brake pedal, but only a microswitch; when the accelerator pedal is released and the brake pedal is pushed (brake switch closed), the inverter performs an electrical braking following "Pedal braking" parameter.

8 SET TEMPERATURE

- DIGITAL: a digital (ON/OFF) motor thermal sensor is connected to F6 input.
- ANALOG: an analog motor thermal sensor is connected to F6 (the curve can be customized on a customer request).
- NONE: no motor thermal sensor switch is connected.

SUBMENU "ADJUSTEMENT"

1 SET POT BRK MIN: records the minimum value of braking pedal potentiometer when the braking pedal switch is closed; the procedure is similar to the "Program Vacc" function (see chapter 5.4). This procedure must be carried out only if the "Pedal braking" option is programmed as "Analog".

2 SET POT BRK MAX: records the maximum value of braking pedal potentiometer when the braking pedal is fully pressed; the procedure is similar to the "Program Vacc" function (see chapter 5.4). This procedure must be carried out only if the "Pedal braking" option is programmed as "Analog".

3 SET BATTERY TYPE: selects the nominal battery voltage;

4 ADJUST BATTERY: fine adjustement of the battery voltage measured by the controller.

5 ADJUSTMENT #04: this parameter determines the motor temperature level at which the “Motor temperature” alarm is signalled. The range is from 70°C to 160°C with 10°C steps. This parameter must be adjusted only if the “Set temperature” (menu “Set option”) parameter is programmed “Analog”.

CAT Rev. 11
Controller: ZAPI AC-2 PUMP INVERTER 48V 350A Date 15.02.05
Program version: ACRO0.16
Zapi's serial number from:

CONFIG MENU

SET MODEL NOT AVAILABLE

SET OPTIONS

HOUR COUNTER	RUNNING
BATTERY CHECK	OFF
SET TEMPERATURE	ANALOG

ADJUSTMENTS

SET BATTERY TYPE	V	48
ADJUST BATTERY	V	BATTERY VOLTAGE
THROTTLE 0 ZONE	%	11
THROTTLE X POINT	%	63
THROTTLE Y POINT	%	36
ADJUSTMENT #04	°	120
ADJUSTMENT #03	°	55

MAIN MENU

PARAMETER CHANGE

ACCELER. DELAY		0	1	2	3	4	5	6	7	8	9
DECELER. DELAY		0	1	2	3	4	5	6	7	8	9
MAX SPEED UP	Hz	110									
MIN SPEED UP	Hz	0									
MAXIMUM CURRENT		0	1	2	3	4	5	6	7	8	9

CAT Rev. 9
Controller: ZAPI AC-2 TRACTION INVERTER 48V 3 Date 15.02.05
Program version: AC2RO0.16
Zapi's serial number from:

CONFIG MENU

SET MODEL

CONNECTION	1	2	5	6	9
	SICOS	TR	PU	EPS	RIO

SET OPTIONS

HOUR COUNTER	RUNNING
BATTERY CHECK	ON
CUTBACK MODE	ABSENT
HYDRO KEY ON	OFF
STOP ON RAMP	OFF
AUX OUTPUT #1	BRAKE
PEDAL BRAKING	DIGITAL
SET TEMPERATURE	ANALOG

ADJUSTMENTS

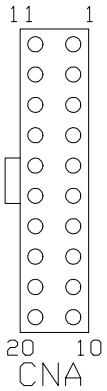
SET BATTERY TYPE	V	48
ADJUST BATTERY	V	BATTERY VOLTAGE
THROTTLE 0 ZONE	%	7
THROTTLE X POINT	%	63
THROTTLE Y POINT	%	36
ADJUSTMENT #04	°	120
ADJUSTMENT #03	°	35
ADJUSTMENT #02		3
ADJUSTMENT #01		3

MAIN MENU

PARAMETER CHANGE

ACCELER. DELAY I	0	1	2	3	4	5	6	7	8	9
ACCELER. DELAY II	0	1	2	3	4	5	6	7	8	9
ACCELER. DELAY III	0	1	2	3	4	5	6	7	8	9
RELEASE BRAKING I	0	1	2	3	4	5	6	7	8	9
RELEASE BRAKING II	0	1	2	3	4	5	6	7	8	9

8.2 CNA CONNECTOR



TAB.	A CONN. CODE
1	NPOT
2	PPOT
3	CANH
4	CANH
5	FWD
6	VCC
7	GND
8	GND
9	PPOC
10	QLS
11	CPOT
12	K3
13	CANL
14	CANL
15	REV
16	CHA
17	CHB
18	INDIC
19	PPOC2
20	DLS

1	NPOT	This is the lower voltage connection for the steer feedback potentiometer. It's internally connected to GND through a 470 Ohms resistance.
2	PPOT	This is the higher voltage connection for the steer feedback potentiometer. It's internally connected to a 5Vdc reference through a 470 Ohms resistance .
3	CANH	This is the high reference of the CAN interface.
4	CANH	Same of pin #3. Pin #3 and #4 are internally connected together.
5	FWD	A request to travel in the Drive Unit direction must provide a signal on this input, either at battery positive or battery negative. Either level may be selected configuring Jumper J2.
6	VCC	Optional encoder supply. When an encoder is used it may be supplied through this pin. The output voltage is selected through the jumper J8 (see. 5).
7	GND	This is internally connected to ground (battery minus) reference. It may be used for the GND reference of the optional encoder or for the stepper motor (manual command device).
8	GND	This is internally connected to ground (battery minus) reference. It may be used for the GND reference of the steer angle direction Led gauge.
9	PPOC	Not Used. This is the higher voltage connection for a handwheel set point potentiometer. **This steering option requires modifications on the logic card and cannot be carried out when a tacho-generator or a stepper motor card is chosen.** This pin is internally connected to a 5Vdc reference through a 470 Ohms resistance.

Full Version Available

Caterpillar NR14K Reach Truck Operator Manual (WHOMM0029)

Caterpillar NR14K Reach Truck operator manual, covers controls, safety, inspections, battery care, and fault guidance. Downloadable PDF format.