TEREX | COMEDIL

CTT "City"

Standard and Optional Controls

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Chapter 6

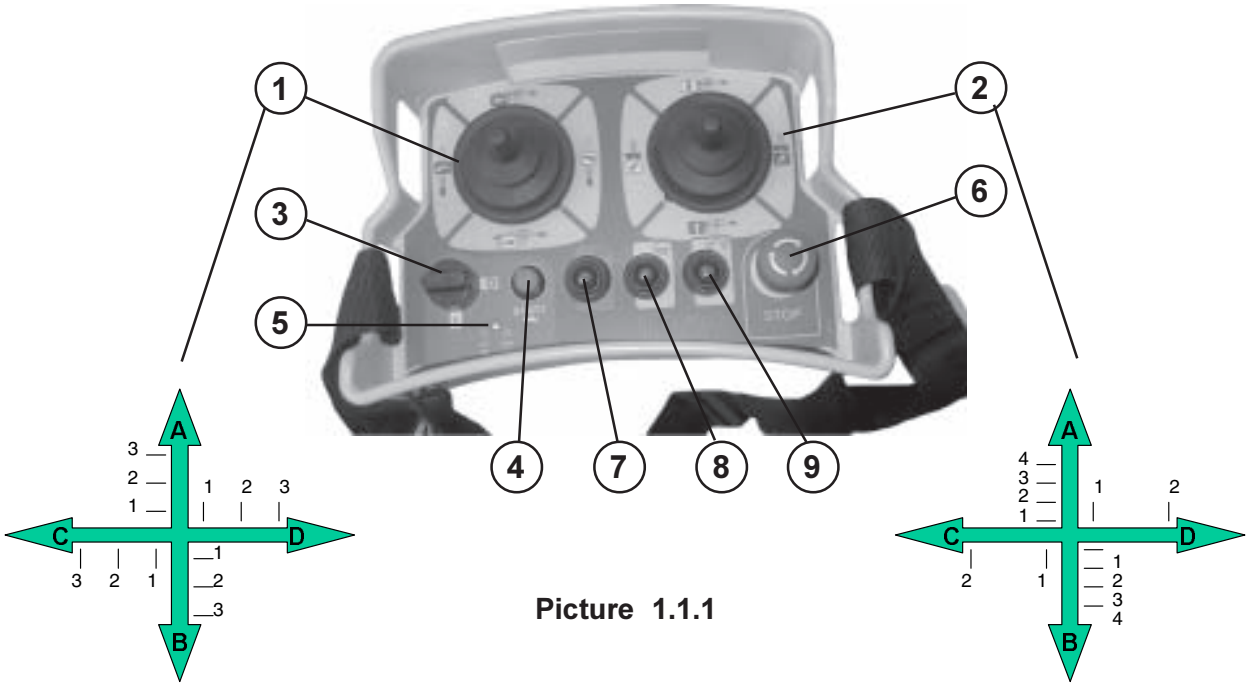
A

1 CTT "CITY" CRANE CONTROLS

All CTT "CITY" crane models have provisions for use of three different control stations: one standard control station and two optional control stations.

1.1 STANDARD CONTROL STATION

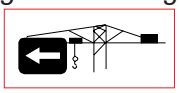
The standard control station (picture 1.1.1) consists in a radio remote control unit with the receiver forming part of the main equipment inside the cab tower section and the mobile unit, working up to a maximum distance of about 100 m *(328 ft)* from the crane bottom.

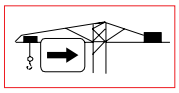


Picture 1.1.1

The standard control station includes:

1) *Joystick (**1**) actuating trolley traversing and slewing motions (picture 1.1.1)*

a) moving the joystick in "A" direction  you activate *"Trolley traversing outward"* (towards jib point);

moving the joystick in "B" direction  you activate *"Trolley traversing inward"* (towards jib foot).

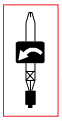
Three different speeds (see tables 1.1.1 and 1.1.2) can be engaged by a stick-slip movement of the lever in both directions.

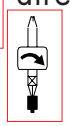
Trolley Traversing 3-speed Hoist winches - DVF Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12.5 %
2	2ª	50 %
3	3ª	100 %

Table 1.1.1

Trolley Traversing 2-speed Hoist winches - DAD Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	50 %
2	2ª	100 %
3	-	not enabled

Table 1.1.2

b) moving the joystick in "C"  direction you activate *"Counterclockwise slewing"*;

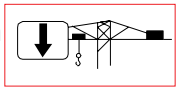
moving it in "D" direction  you activate, instead, *"Clockwise slewing"*.

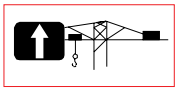
Three different speeds (see table 1.1.3) can be engaged by a stick-slip movement of the lever in both directions

3-speed Slewing		
C and D Directions		
Position	Speed	Speed Percentage
1	1ª	30 %
2	2ª	60 %
3	3ª	100 %

Table 1.1.3

*2) Joystick (**2**) actuating hoisting and travelling (picture 1.1.1)*

a) moving the joystick in "A" direction  you activate *"Load lowering"*;

moving thejoystick in "B" direction  you activate *"Load lifting"*.

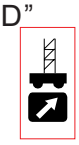
Four different speeds (see tables 1.1.4 and 1.1.5) can be engaged by a stick-slip movement of the lever in both directions.

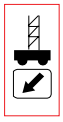
Load Lowering and Lifting 4- speed Hoist Winches - AFC Series		
A and B directions		
Position	Speed	Speed percentage
1	1ª	12 %
2	2ª	25 %
3	3ª	50 %
4	4ª	50% to 100% depending on the load

Table 1.1.4

Load Lowering and Lifting 3-speed Hoist Winches - APC Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12 %
2	2ª	50 %
3	3ª	100 %
4	-	not enabled

Table 1.1.5

b) moving the joystick in "D" direction you activate *"Travelling forward"*; 

moving the joystick in "C" direction you activate *"Travelling in reverse"*. 

Two different speeds (see table 1.1.6) can be engaged by a stick-slip movement of the lever in both directions.

2-speed Travelling		
D and C Directions		
Position	Speed	Speed Percentage
1	1ª	100 %
2	-	not enabled

Table 1.1.6

*3) **"ON"** extractable key (**3**) (picture 1.1.1)*

With ***"ON"*** key (**3**) in position **"I"**, the crane start is enabled; with ***"ON"*** key (**3**) in position **"O"**, the crane start is not allowed.

*4) Green **"START"** and **"HORN"** pushbutton* *(**4**) (picture 1.1.1)*

With ***"ON"*** key (**3**) in position **"I"**, press *green* ***"START"*** push-button (**4**). The operation carried out correctly shall be signalled by an audible warning.

Green push-button (**4**), with the crane in service, is also intended for use as a horn.

*5) Green **"ON"** signalling led-light (**5**) (picture 1.1.1)*

The led (**5**) lights up when the crane is energized by pressing *green* ***"START"*** push-button (**4**). The led-light flashing indicates discharging of the control device battery.

*6) Red **"STOP"** mushroom push-button (**6**) (picture 1.1.1)*

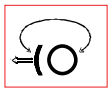
With push-button (**6**) pressed, all crane functions in progress stop and all brakes activate.

"STOP" push-button is self-latching type, thus preventing the crane from being placed in service again by *green* ***"START"*** push-button (**4**).

To reset the working condition, impart a clockwise slewing motion.

7) "Slewing emergency brake" push-button *(**7**) (fig. 1.1.1)*

With push-button (**7**) pressed and the slewing control joystick in neutral position, the slewing brakes activate immediately and the motion stops.

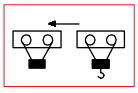
*8) "Slewing brake **"OFF"** "push-button*  *(**8**) (picture 1.1.1)*

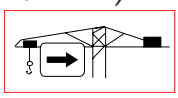
With push-button (**8**) pressed and the slewing control joystick in neutral position:

- ⇨ the slewing brakes are released and the jib can weathervane (push-button pressed for at least 3 seconds).

  The operation carried out correctly shall be signalled by a short intermittent audible warning ↳ see *para. 1.4 "Audible warnings"*);

- ⇨ the slewing brakes activate and the motion stops (push-button pressed for less than 1 second with brakes ***"OFF"***).

9) "Trolley-in limit switch disconnection" push-button  *(**9**) (picture 1.1.1)*

With push-button (**9**) pressed and joystick (**1**) moved to "B" direction, 

the trolley-in stop position set by the electrical limit switch can be overtravelled.
With push-button (**9**) pressed, the 2nd and 3rd trolley traversing speeds are, furthermore, automatically disengaged.

For further information on the standard control station considered, refer to **Chapter 6B - "Radio remote control"** of the crane operation manual.

1.2 OPTIONAL CONTROL STATIONS

"QEG" electrical box, located inside the cab mast section, includes "XS0" multipole socket for the connection of the optional control stations.

The insertion of the plug of one of the two optional control stations into "XS0" socket automatically disactivates the standard remote radio control station.

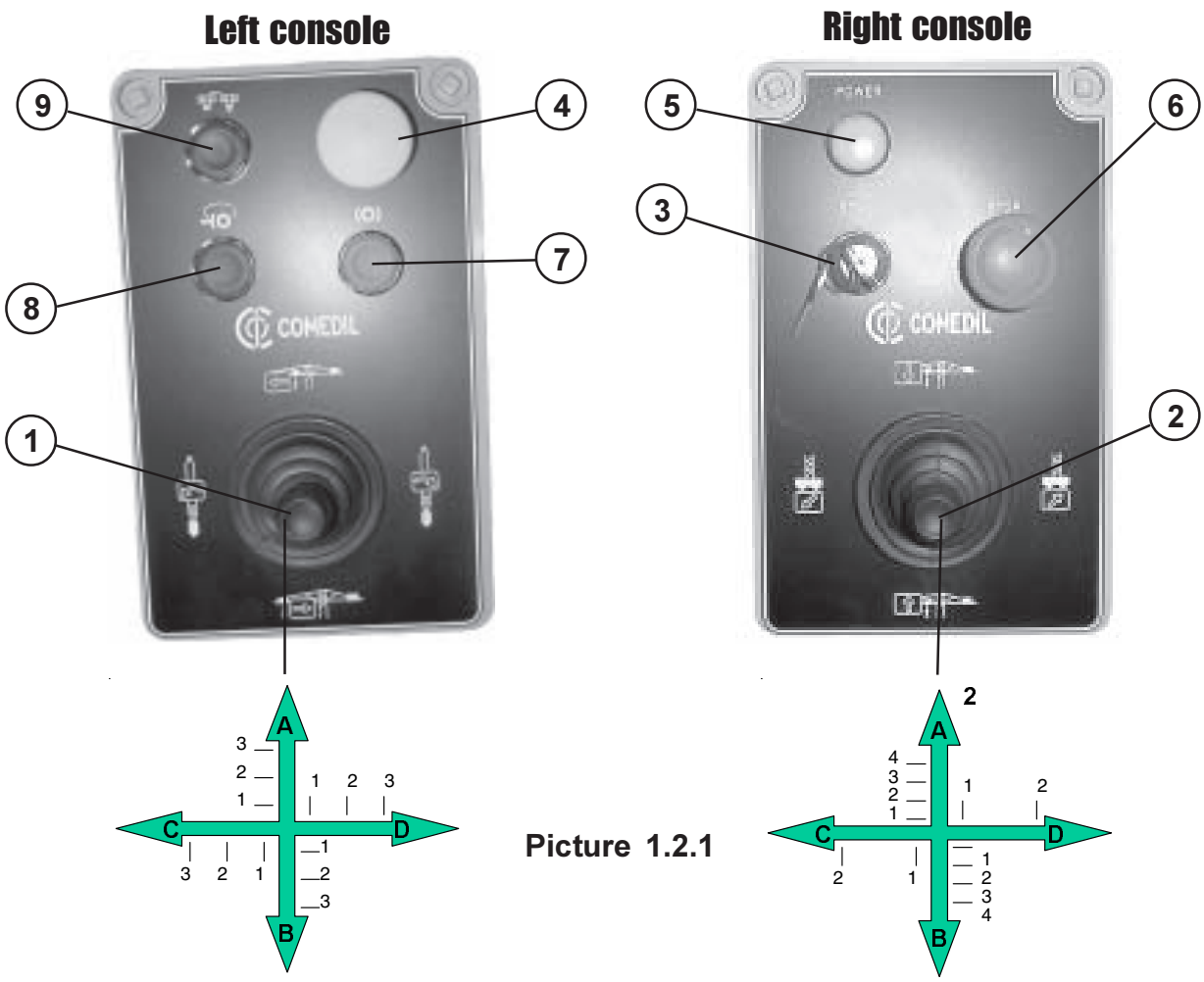
Optional control stations provided:

1) Fixed control station inside the operator's cab
2) Mobile control station

! Other control stations than Comedil's original ones provided, shall be subject to the crane Manufacturer's approval. If not, Comedil declines any responsability for possible malfunctionings of the machine.

1.2.1 Fixed control station inside the operator's cab (standard cab)

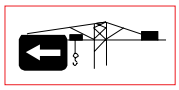
☞ For the connection of the fixed control station (picture 1.2.1) inside the operator's cab, refer to **Chapter 5C "Slewing Upper Part - Electrical Equipment Location"** of the crane operation manual.

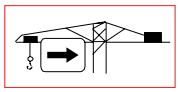


Picture 1.2.1

The fixed control station includes:

1) *Joystick (**1**) actuating trolley traversing and slewing motions (picture 1.2.1)*

a) moving the joystick in "A" direction  you activate *"Trolley traversing outward"* (towards jib point);

moving the joystick in "B" direction  you activate *"Trolley traversing inward"* (towards jib foot).

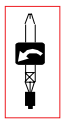
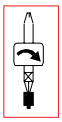
Three different speeds (see tables 1.2.1 and 1.2.2) can be engaged by a stick-slip movement of the lever in both directions.

Trolley Traversing 3-speed Hoist winches - DVF Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12.5 %
2	2ª	50 %
3	3ª	100 %

Table 1.2.1

Trolley Traversing 2-speed Hoist winches - DAD Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	50 %
2	2ª	100 %
3	-	not enabled

Table 1.2.2

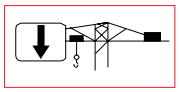
b) moving the joystick in "C" direction you activate  *"Counterclockwise slewing"*;
moving it in "D" direction you activate,  instead, *"Clockwise slewing"*.

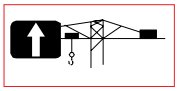
Three different speeds (see table 1.2.3) can be engaged by a stick-slip movement of the lever in both directions.

3-speed Slewing		
C and D Directions		
Position	Speed	Speed Percentage
1	1ª	30 %
2	2ª	60 %
3	3ª	100 %

Table 1.2.3

*2) Joystick (**2**) actuating hoisting and travelling (picture 1.2.1)*

a) moving the joystick in "A" direction  you activate *"Load lowering"*;

moving the joystick in "B" direction  you activate *"Load lifting"*.

Four different speeds (see tables 1.2.4 and 1.2.5) can be engaged by a stick-slip movement of the lever in both directions.

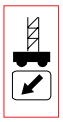
Load Lowering and Lifting 4- speed Hoist Winches - AFC Series		
A and B directions		
Position	Speed	Speed percentage
1	1ª	12 %
2	2ª	25 %
3	3ª	50 %
4	4ª	50% to 100% depending on the load

Table 1.2.4

Load Lowering and Lifting 3-speed Hoist Winches - APC Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12 %
2	2ª	50 %
3	3ª	100 %
4	-	not enabled

Table 1.2.5

b) moving the joystick in "D" direction you activate *"Travelling forward"*;

moving the joystick in "C" direction  you activate *"Travelling in reverse"*.

Two different speeds (see table 1.2.6) can be engaged by a stick-slip movement of the lever in both directions.

2-speed Travelling		
D and C Directions		
Position	Speed	Speed Percentage
1	1ª	100 %
2	-	not enabled

Table 1.2.6

3) ***"START"*** *extractable monostable key (**3**) (picture 1.2.1)*

With ***"START"*** key (**3**) inserted, turn it clockwise to enable the crane start.
When releasing the key, this returns to neutral position. With the key in neutral position, you can extract it and disactivate the control station.

4) *Yellow **"HORN"** push-button* *(**4**) (picture 1.2.1)*

When pressing push-button (**4**), the horn activates.
This push-button operates also with out-of-service crane.

5) *Green **"POWER"** "Voltage **ON**" indicator light (**5**) (fig. 1.2.1)*

The green light indicates that the crane control circuit is powered and that the crane start is enabled.

6) *Red **"STOP"** mushroom push-button (**6**) (picture 1.2.1)*

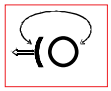
With push-button (**6**) pressed, all crane functions in progress stop and all brakes activate.

"STOP" push-button is self-latching type, thus preventing the crane from being placed in service again by ***"START"*** key (**3**).

To reset the working condition, impart a clockwise slewing motion.

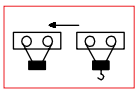
7) *Red "Slewing emergency brake" push button* *(**7**) (fig. 1.2.1)*

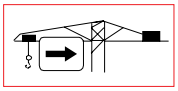
With push-button (**7**) pressed and the slewing control joystick in neutral position, the slewing brakes activate immediately and the motion stops.

8) *Black "Slewing brake **OFF**" push button*  *(**8**) (fig. 1.2.1)*

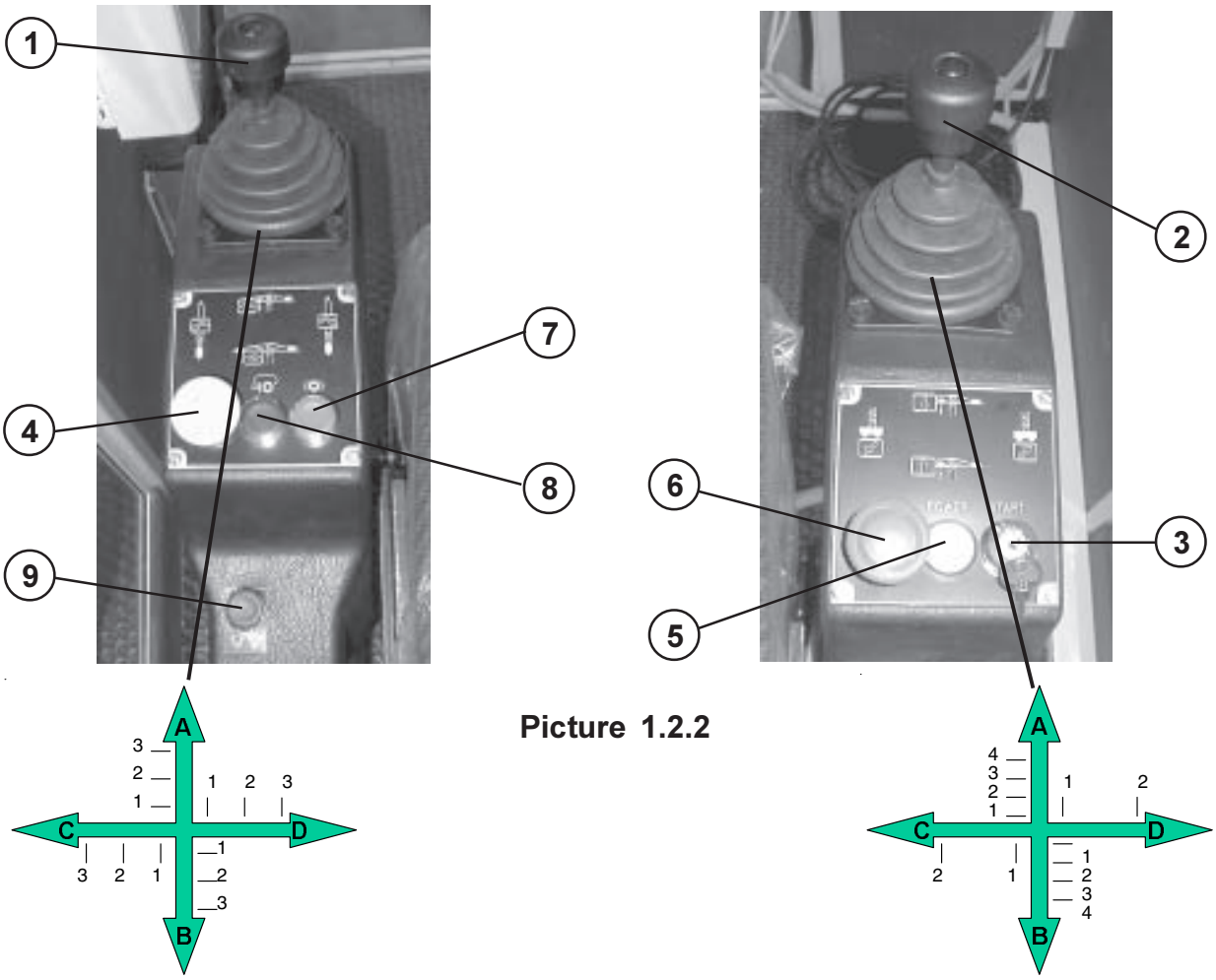
With push-button (**8**) pressed and the slewing control joystick in neutral position:

- ⇨ the slewing brakes are released and the jib can weathervane (push-button pressed for at least 3 seconds).
  The operation carried out correctly shall be signalled by a short intermittent audible warning ↳ see *para. 1.4 "Audible warnings"*);
- ⇨ the slewing brakes activate and the motion stops (push-button pressed for less than 1 second with brakes ***"OFF"***).

9) *Black "Trolley-in limit switch disconnection" push button*  *(**9**) (fig. 1.2.1)*

With push-button (**9**) pressed and joystick (**1**) moved to "B" direction,  the trolley-in stop position set by the electrical limit switch can be overtravelled. With push-button (**9**) pressed, the 2nd and 3rd trolley traversing speeds are, furthermore, automatically disengaged.

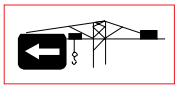
1.2.2 Fixed control station inside the operator's cab ("LX" cab)

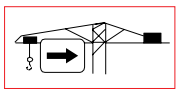


Picture 1.2.2

The fixed control station includes:

*1) Joystick (**1**) actuating trolley traversing and slewing motions (picture 1.2.2)*

a) moving the joystick in "A" direction  you activate *"Trolley traversing outward"* (towards jib point);

moving the joystick in "B" direction  you activate *"Trolley traversing inward"* (towards jib foot).

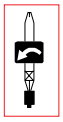
Three different speeds (see tables 1.2.7 and 1.2.8) can be engaged by a stick-slip movement of the lever in both directions.

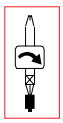
Trolley Traversing 3-speed Hoist winches - DVF Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12.5 %
2	2ª	50 %
3	3ª	100 %

Table 1.2.7

Trolley Traversing 2-speed Hoist winches - DAD Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	50 %
2	2ª	100 %
3	-	not enabled

Table 1.2.8

b) moving the joystick in “C” direction  you activate *“Counterclockwise slewing”*;

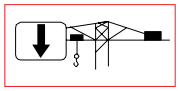
moving it in “D” direction  you activate, instead, *“Clockwise slewing”*.

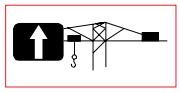
Three different speeds (see table 1.2.9) can be engaged by a stick-slip movement of the lever in both directions.

3-speed Slewing		
C and D Directions		
Position	Speed	Speed Percentage
1	1ª	30 %
2	2ª	60 %
3	3ª	100 %

Table 1.2.9

*2) Joystick (**2**) actuating hoisting and travelling (picture 1.2.2)*

a) moving the joystick in “A” direction  you activate *“Load lowering”*;

moving the joystick in “B” direction  you activate *“Load lifting”*.

Four different speeds (see tables 1.2.10 and 1.2.11) can be engaged by a stick-slip movement of the lever in both directions.

Load Lowering and Lifting 4-speed Hoist Winches - AFC Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12 %
2	2ª	25 %
3	3ª	50 %
4	4ª	50% to 100% depending on the load

Table 1.2.10

Load Lowering and Lifting 3-speed Hoist Winches - APC Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12 %
2	2ª	50 %
3	3ª	100 %
4	-	not enabled

Table 1.2.11

b) moving the joystick in "D" direction you activate *"Travelling forward"*;

moving the joystick in "C" direction you activate *"Travelling in reverse"*.

Two different speeds (see table 1.2.12) can be engaged by a stick-slip movement of the lever in both directions.

2-speed Travelling		
D and C Directions		
Position	Speed	Speed Percentage
1	1[a]	100 %
2	-	not enabled

Table 1.2.12

3) ***"START"*** *extractable monostable key (**3**) (picture 1.2.2)*

With key (**3**) inserted, turn it clockwise to enable the crane start.
When releasing the key, this returns to neutral position. With the key in neutral position, you can extract it and disactivate the control station.

4) *Yellow **"HORN"** push-button (**4**) (picture 1.2.2)*

When pressing push-button (**4**), the horn activates.
This push-button is operates also with out-of-service crane.

5) *Green **"POWER"** "Voltage **ON**" indicator light (**5**) (fig. 1.2.2)*

The green light indicates that the crane control circuit is powered and that the crane start is enabled.

6) *Red **"STOP"** mushroom push-button (**6**) (picture 1.2.2)*

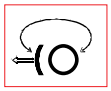
With push-button (**6**) pressed, all crane functions in progress stop and all brakes activate.

"STOP" push-button is self-latching type, thus preventing the crane from being placed in service again by ***"START"*** key (**3**).

To reset the working condition, impart a clockwise slewing motion.

7) *Red "Slewing emergency brake" push button (**7**) (fig. 1.2.2)*

With push-button (**7**) pressed and the slewing control joystick in neutral position, the slewing brakes activate immediately and the motion stops.

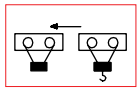
8) *Black "Slewing brake **OFF**" push button*  *(**8**) (fig. 1.2.2)*

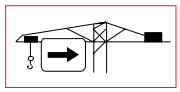
With push-button (**8**) pressed and the slewing control joystick in neutral position:

⇨ the slewing brakes are released and the jib can weathervane (push-button pressed for at least 3 seconds).

The operation carried out correctly shall be signalled by a short intermittent audible warning ↳ see *para. 1.4 "Audible warnings"*);

⇨ the slewing brakes activate and the motion stops (push-button pressed for less than 1 second with brakes ***"OFF"***).

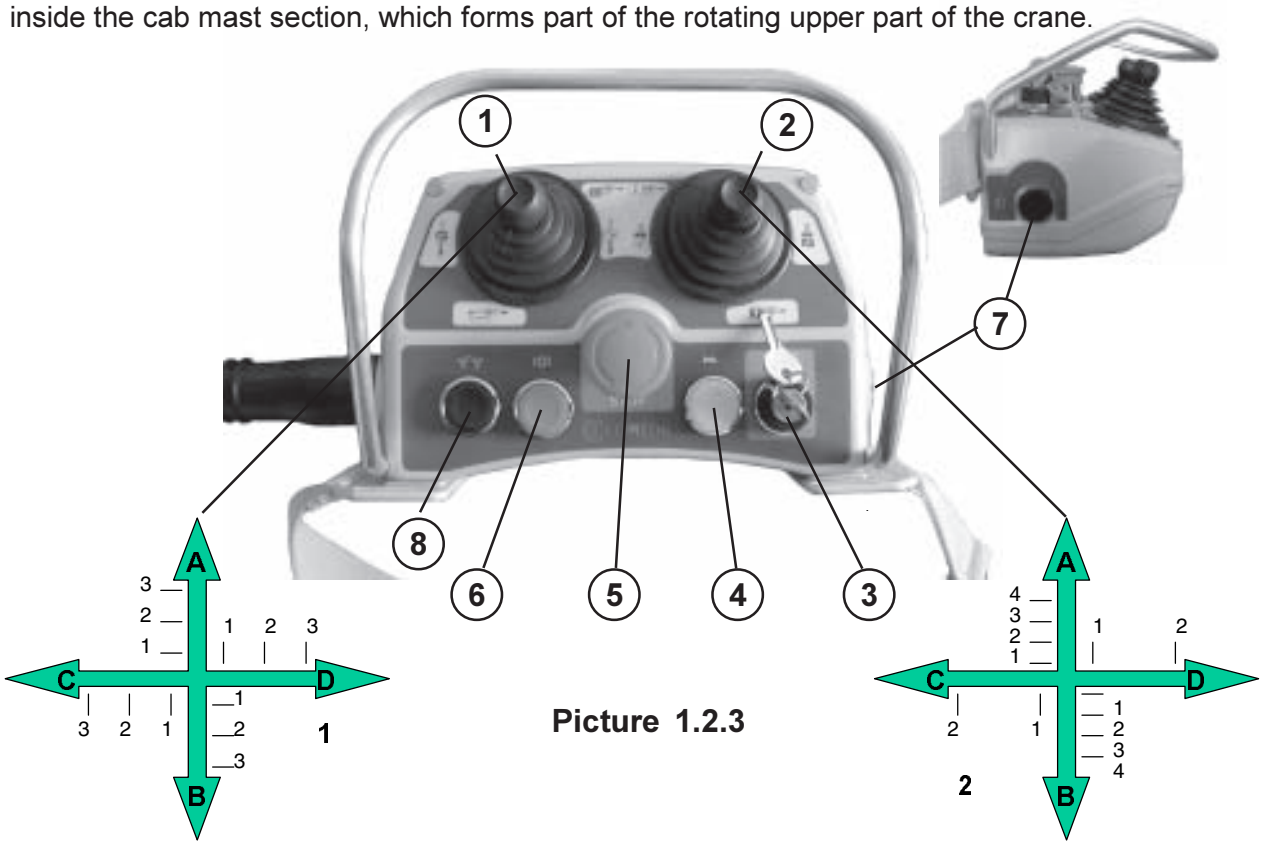
9) *Black "Trolley-in limit switch disconnection" push button*  *(**9**) (fig. 1.2.2)*

With push-button (**9**) pressed and joystick (**1**) moved to "B" direction,  the trolley-in stop position set by the electrical limit switch can be overtravelled. With push-button (**9**) pressed, the 2nd and 3rd trolley traversing speeds are, furthermore, automatically disengaged.

1.2.3 Mobile control station

The mobile control station (picture 1.2.3) allows the control of the crane motions with the standard remote radio control station in out-of-service condition.

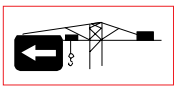
This control station is operative up to 10 m *(33 ft)* max. distance from "QEG" electrical box, placed inside the cab mast section, which forms part of the rotating upper part of the crane.

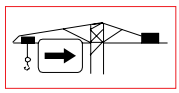


Picture 1.2.3

The mobile control station includes:

1) *Joystick (**1**) actuating trolley traversing and slewing motions (picture 1.2.3)*

a) moving the joystick in "A" direction  you activate *"Trolley traversing outward"* (towards jib point);

moving the joystick in "B" direction  you activate *"Trolley traversing inward"* (towards jib foot).

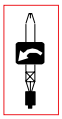
Three different speeds (see tables 1.2.13 and 1.2.14) can be engaged by a stick-slip movement of the lever in both directions.

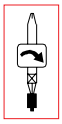
Trolley Traversing 3-speed Hoist winches - DVF Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12.5 %
2	2ª	50 %
3	3ª	100 %

Table 1.2.13

Trolley Traversing 2-speed Hoist winches - DAD Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	50 %
2	2ª	100 %
3	-	not enabled

Table 1.2.14

b) moving the joystick in “C” direction  you activate *“Counterclockwise slewing”*;

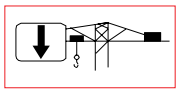
moving it in “D” direction  you activate, instead, *“Clockwise slewing”*.

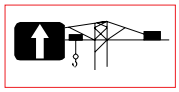
Three different speeds (see table 1.2.15) can be engaged by a stick-slip movement of the lever in both directions.

3-speed Slewing		
C and D Directions		
Position	Speed	Speed Percentage
1	1ª	30 %
2	2ª	60 %
3	3ª	100 %

Table 1.2.15

*2) Joystick (**2**) actuating hoisting and travelling (picture 1.2.3)*

a) moving the joystick in “A” direction  you activate *“Load lowering”*;

moving the joystick in “B” direction  you activate *“Load lifting”*.

Four different speeds (see tables 1.2.16 and 1.2.17) can be engaged by a stick-slip movement of the lever in both directions.

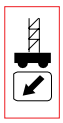
Load Lowering and Lifting 4-speed Hoist Winches - AFC Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12 %
2	2ª	25 %
3	3ª	50 %
4	4ª	50% to 100% depending on the load

Table 1.2.16

Load Lowering and Lifting 3-speed Hoist Winches - APC Series		
A and B Directions		
Position	Speed	Speed Percentage
1	1ª	12 %
2	2ª	50 %
3	3ª	100 %
4	-	not enabled

Table 1.2.17

b) moving the joystick in "D" direction you activate *"Travelling forward"*;

moving the joystick in "C" direction  you activate *"Travelling in reverse"*.

Two different speeds (see table 1.2.18) can be engaged by a stick-slip movement of the lever in both directions.

2-speed Travelling		
D and C Directions		
Position	Speed	Speed Percentage
1	1[a]	100 %
2	-	not enabled

Table 1.2.18

3) ***"START"*** *extractable monostable key (**3**) (picture 1.2.3)*

With key (**3**) inserted, turn it clockwise to enable the crane start.
When releasing the key, this returns to neutral position. With the key in neutral position, you can extract it and disactivate the control station.

4) *Yellow **"HORN"** push-button* *(**4**) (picture 1.2.3)*

When pressing push-button (**4**), the horn activates.
This push-button is operates also with out-of-service crane.

5) *Red **"STOP"** mushroom push-button (**5**) (picture 1.2.3)*

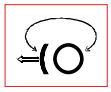
With push-button (**5**) pressed, all crane functions in progress stop and all brakes activate.

"STOP" push-button is self-latching type, thus preventing the crane from being placed in service again by ***"START"*** key (**3**).

To reset the working condition, impart a clockwise slewing motion.

6) *Red "Slewing emergency brake" push button* *(**6**) (fig. 1.2.3)*

With push-button (**6**) pressed and the slewing control joystick in neutral position, the slewing brakes activate immediately and the motion stops.

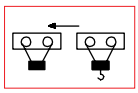
7) *Black "Slewing brake **OFF**" push button*  *(**7**) (fig. 1.2.3)*

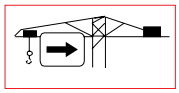
With push-button (**7**) pressed and the slewing control joystick in neutral position:

⇨ the slewing brakes are released and the jib can weathervane (push-button pressed for at least 3 seconds).

The operation carried out correctly shall be signalled by a short intermittent audible warning ↳ see *para. 1.4 "Audible warnings"*);

⇨ the slewing brakes activate and the motion stops (push-button pressed for less than second with brakes ***"OFF"***).

8) Black "Trolley-in limit switch disconnection" push button  *(**8**) (fig. 1.2.3)*

With push-button (**8**) pressed and joystick (**1**) moved to "B" direction,  the trolley-in stop position set by the electrical limit switch can be overtravelled. With push-button (**8**) pressed, the 2nd and 3rd trolley traversing speeds are, furthermore, automatically disengaged.

1.3 PANORAMIC CONTROL CAB

The panoramic cab, mounted on the rotating portion of the crane, is intended for use as comfortable protection and working station for the operator.

1.3.1 Standard cab

Cab features (for 50 Hz mains supplied Countries)

1) Adjustable operator's seat, arranged and constructed to minimize the operator's fatigue;
2) Lighting by 220V lamp;
3) SCHUKO single-phase socket powered at 220V -2000 W max.;
4) 220V-600 W electric heater with programmable thermostat and clock ;
5) Prearrangement for installation of 220V-2000 W air-conditioner;
6) Prearrangement for installation of obstruction lights equipment;
7) Moment indicator light: yellow (90%) and red (100%).

Cab features (for 60 Hz mains supplied Countries)

1) Adjustable operator's seat, arranged and constructed to minimize the operator's fatigue;
2) Lighting by 110V lamp;
3) Two single-phase sockets (U.S. type) powered at 110V-3000 W max.;
4) Prearrangement for installation of 110V-600 W electric heater ;
5) Prearrangement for installation of 110V-3000 W air-conditioner;
6) Prearrangement for installation of obstruction lights equipment;
7) Moment indicator light: yellow (90%) and red (100%).

1.3.2 "LX" cab

Cab features (for 50 Hz mains supplied Countries)

1) The operator's seat is adjustable, revolving, with controls on the arm rests, arranged and constructed to minimize the operator's fatigue;
2) Lighting by 24V lamp;
3) six single-phase sockets powered at 220V -2000 W max.;
4) 220V-600 W electric heater with programmable thermostat and clock;
5) prearrangement for installation of 220V-2000 W air-conditioner;
6) electric windscreen wiper and water sprayer at 24V;
7) "90% and 100% moment" acoustic and luminous signal box;
8) prearrangement for 400V power supply of obstruction lights equipment;
9) prearrangement for 24Vdc optional installation.

Cab features (for 60 Hz mains supplied Countries)

1) The operator's seat is adjustable, revolving, with controls on the arm rests, arranged and constructed to minimize the operator's fatigue;
2) Lighting by 24V lamp;
3) six single-phase sockets powered at 110V -2000 W max.;
4) prearrangement for installation of 110V - 600W electric heater;
5) prearrangement for installation of 220V-2000 W air-conditioner;
6) electric windscreen wiper and water sprayer at 24V;
7) "90% and 100% moment" acoustic and luminous signal box;
8) prearrangement for 400V power supply of obstruction lights equipment;
9) prearrangement for 24Vdc optional installation.

1.4 AUDIBLE WARNINGS

The crane is provided with a three-tone audible warning (table 1.4.1).

Sound	Type	Action by Operator	Explanation
Tone 1	intermittent short	Brake-OFF push-button *ON*	Indicating that slewing brakes have been properly released and allowing to stop the crane and leave it unattended
Tone 2	intermittent short	Load lifting or Trolley out *ON*	Signalling the intervention of the load limiter or moment limiter
Tone 3	intermittent long	Motion operated by joystick	Signalling a malfunctioning of the motion operated

Table 1.4.1