

Crack Cleaning Device (CCD) User's Manual



NDOR Project: M321
Effectiveness study of UNL's pneumatic
crack/joint preparation device

Test Period: Oct. 19, 2012 -March 31, 2013

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1. Configuration of Crack Cleaning Device (CCD)

The description of the CCD Parts is as follows:

- | | |
|---------------|------------------------|
| 1) Regulator | 7) Metal block(weight) |
| 2) Wand Valve | 8) Attachments* |
| 3) Trigger | 9) Pneumatic Motor* |
| 4) Handle | 10) Accessory Guard |
| 5) Wand | 11) Wheel Assembly |
| 6) Air Nozzle | |

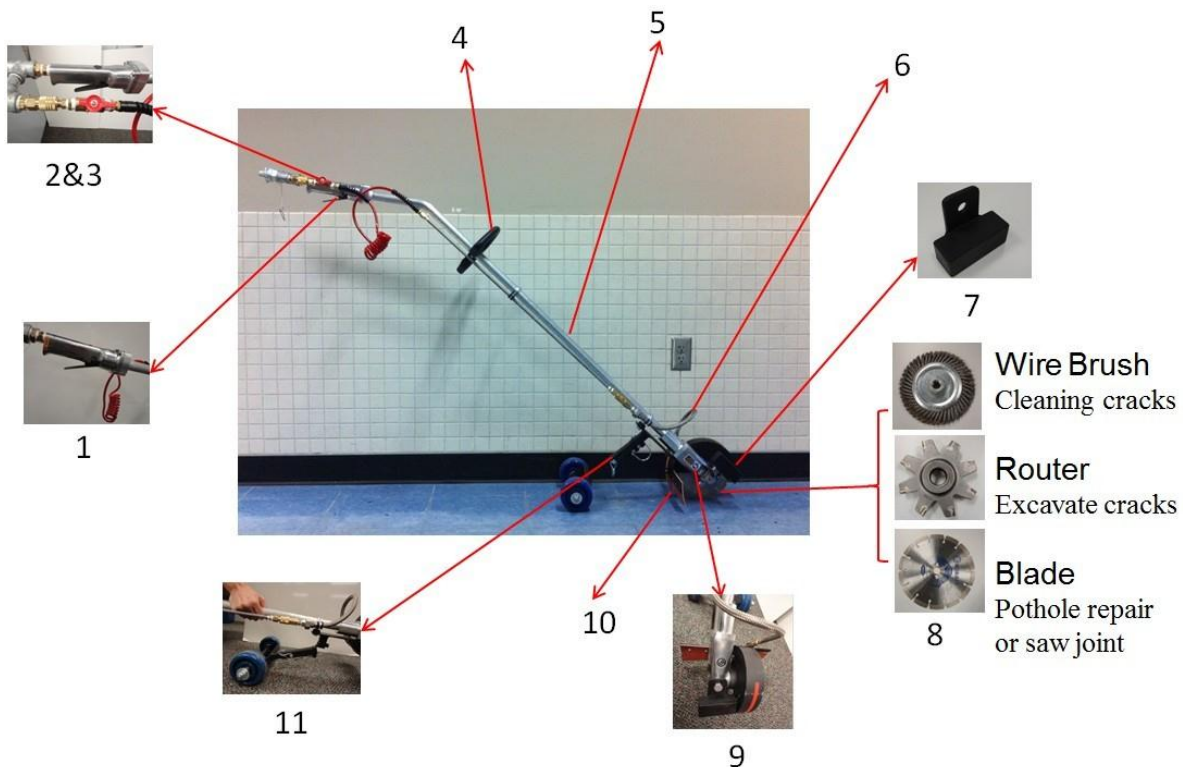


Fig. 1 Configuration of crack cleaning device (CCD)

2. Important Safety Instructions

To reduce the risk of serious injury from thrown objects and blade contact, follow basic precautions, include the following:

Dress Properly - Do not wear loose clothing. They can be caught in moving parts of the CC. Pants, shirt, and work boots should be worn at all times during operation.

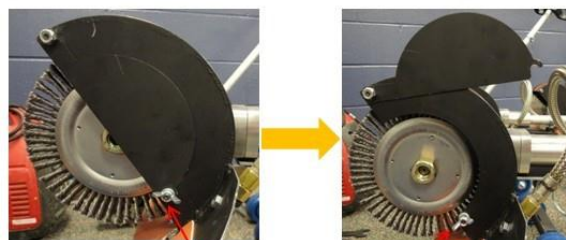
Wear Safety Protection - Use face shield and shin guards during operation or in the vicinity of the operation (Fig.2).

Keep Distance- Keep no one within 10 feet of the person using the equipment



Fig. 2 Wear safety protection

Replace Attachment – Shut off the air flow and wait for the cutting blade to become a complete standstill. Loosen the wing nut counterclockwise to open the half circle accessory guard (Fig.3). Then install the accessories (blade, router, brush, bushing) that you need.



Loosen the wing nut
counterclockwise

Fig. 3 Replace attachment

3. Air Requirements

The following is what is recommended for the effective operation of the CCD.

3.1 Compressor

A trailer type portable compressor is recommended. The compressor should be equipped with a 1" air line and Chicago fittings. Please check water filters as well.

3.2 Hose Size

A 1" air line with Chicago 1" fittings should be used to allow the maximum amount of air to get to the CC (Fig. 4). **Always secure the safety tie with the fittings before use.**



Fig. 4 Chicago fittings

3.3 Air Pressure

Supply the CCD motor with approximately 90 psi of air (for air motor only use). Higher pressures will be accepted when blasting debris simultaneously (about 110 psi). However, be cautious that too high air pressure will reduce the life of the motor.

3.4 Lubrication & Maintenance

An inline oiler is recommended, using SAE #10 oil adjusted to two drops of oil per minute. If that is not available, add oil to the air motor via the hose connection twice daily.

Disassemble and inspect air motor every three months if the tool is used every day. Replace damaged or worn parts.

3.5 Air Dryer

An air dryer is recommended, but not required. This will keep moisture from damaging parts in the motor.

4. Operation

The following is a brief description explaining how to operate and adjust the CCD.

4.1 Installing Attachments

Loosen the wing nut on the accessory guard to pivot up to allow accessory to be placed in the arbor. Tighten accessory onto arbor. Replace the accessory guard to the original position and tighten the wing nut. See the attachment assembly with associated parts below:

i. Blade

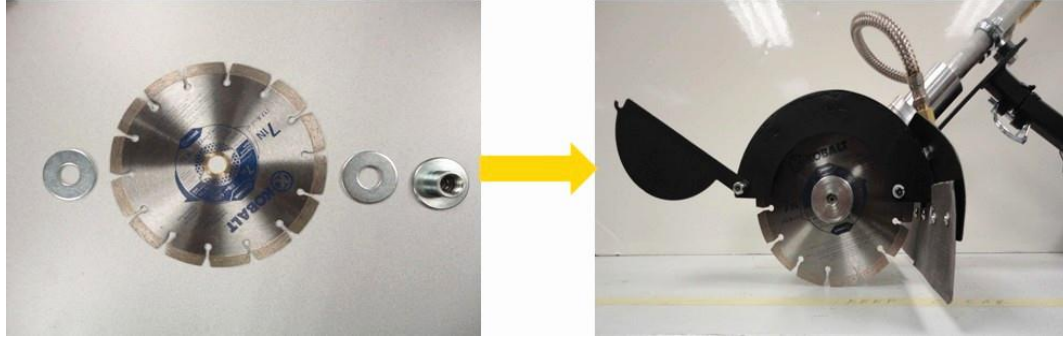


Fig. 5 Blade assembly

ii. Router

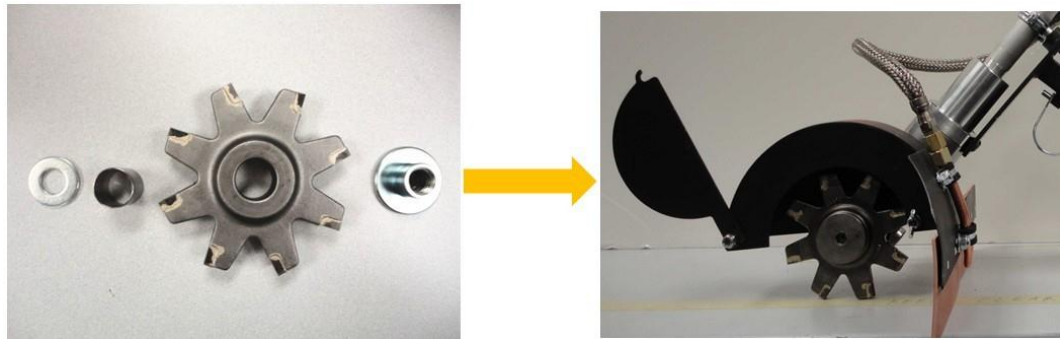


Fig. 6 Router assembly

iii. Brush

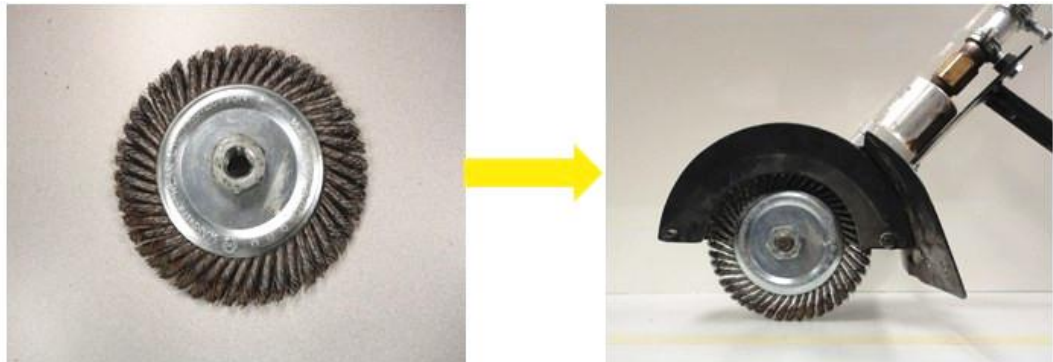


Fig. 7 Brush assembly

4.2 Height Adjustment

If a different height or angle is desired for the CCD, remove the two pins on the lower wheel assembly and adjust as needed. Replace the two pins and check if good.

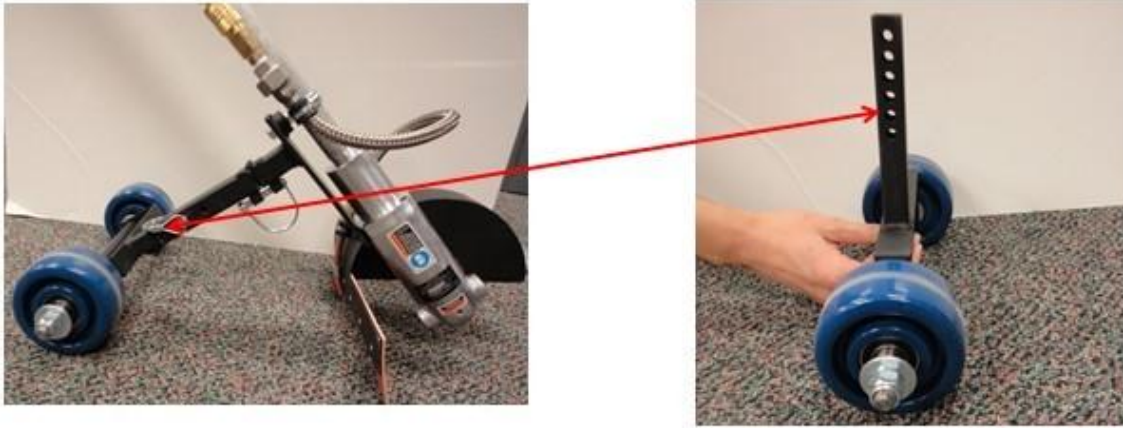


Fig. 8 Adjust height of wheel assembly

4.2.1 Folding / Unfolding Wheels

On the upper wheel assembly, remove / replace the pin if the wheels are to be folded / unfolded.

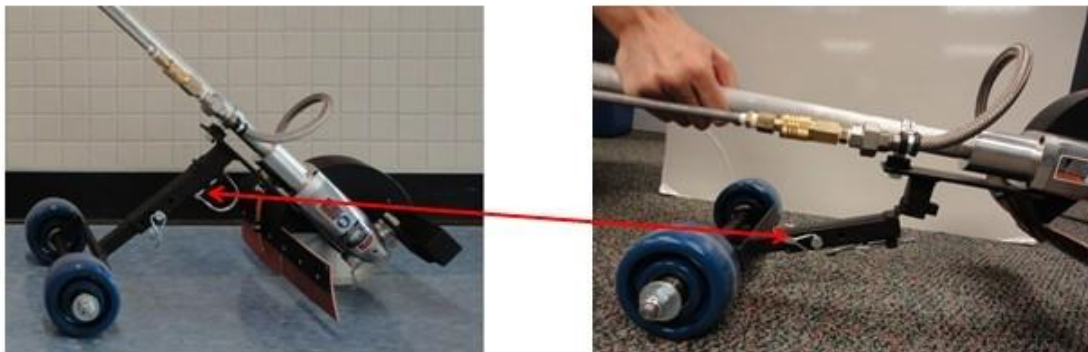


Fig. 9 Fold wheel assembly

4.3 Direction of Air

Air will always be available to the CCD motor. Air can be regulated to the removable wand. By adjusting the valves to the respective component, this will either increase or decrease the amount of air flow to that component.

4.3.1 Air Wand

A detachable air wand is connected to the CCD with easy connection. The air wand can be used to clean cracks and pavement surface in traditional ways. For more cfm for the air wand, shut off the air valve for the motor.

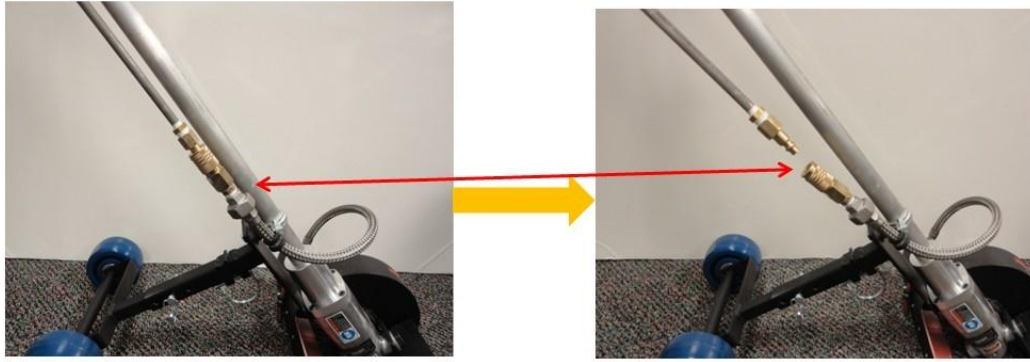


Fig. 10 Quick connection for air wand

5. Parts Specifications

*Specifications of Pneumatic Motor:

Collet/Spindle [in]	5/8-11
Wheel Size [mm (in)]	178 (7)
Maximum rpm	7,500
Weight [kg (lbs)]	2.83 (6.25)
Length [mm (in)]	334 (13.13)
Avg. Air Consumption [l/min (CFM)]	340 (12)
Actual Air Consumption [l/min (CFM)]	679 (24)
Air Inlet Thread Size NPTF [in.]	1/4
Minimum Hose Size [mm (in)]	10 (3/8)
Sound dB(A) Pressure	101.9
Vibration m/s ²	2.7

*Specifications of Attachments to Purchase:

Brush	**Knot Wire Wheel Brushes	00354274	MSC Industrial Supply Co.
http://www1.mscdirect.com/CGI/NNSRIT2?PMPXNO=1662602&PMTERM=00354274			
Router	Carbide Cutter	31136-7	CRAFCO INC.
http://www.crafco.com/Equipment/Router/Router.htm			
Blade	7" Porcelain Tile Diamond Blade	195957	LOWE'S
http://www.lowes.com/pd_195957-10742-TL7SPP_0__?productId=3151529			

*Note: We do not provide the attachments except the first ones. They need to be purchased once they are worn out.

** We provide a 6 in diameter wheel brush, but larger size (e.g., 6-7/8 in) can be used as well.

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