





Issued 05/05





DCthe ball15Twists and turns like no other vacuum

DC15 key technology;

telescope reach

Quick release wand expands for instant cleaning. No awkward parts to assemble for high-reach cleaning.

Multi Cyclone technology

Advanced Dyson cyclone technology.

Self-adjusting stabiliser

Rear wheels lock in place when the machine is upright, and tuck neatly out of the way when the machine is in use.

Cleanerhead geometry

The central pivot on the cleanerhead ensures the head maintains perfect contact with the floor even when the machine is turning.

Motor location

Patented by Dyson, the motor is suspended inside the ball feature, keeping the centre of gravity low and improving manoeuvrability.

Motorised brushbar

Turn brushabr off at the touch of a button to protect delicate rugs or hard floors.

Product overview

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Parts





Introduction

This manual is written specifically for Dyson trained engineers and covers the DC15 range. The service instructions assume the engineer has the approved tools and test equipment with them.

Variants

Product overview



HEPA plus Root⁸ Cyclone™ for cleaner expelled air Low reach floor tool - cleans under low beds and sofas

DC15 overview

DC15 is the new unique upright from Dyson, with a whole range of features designed to make vacuuming more efficient and less of a chore. The ball is what makes DC15 unique. By replacing conventional wheels with a single ball, it enables the machine to manoeuvre around furniture and obstacles with just a small turn of the wrist. The central pivot on the cleanerhead ensures that the head maintains constant contact with the floor. To give great pick up and manoeuvrability, there is a separate motor in the cleanerhead that powers the brushbar; this can be turned off at the touch of a button for delicate rugs or hard floors. All DC15 products incorporate a quick-release wand, which expands for instant cleaning and has no awkward parts to assemble.

Specifications

	DC15 allergy	
Root [®] Cyclone™	\checkmark	
Airwatts (constant)	200AW	
Pre-filter	Lifetime	
Post-filter	HEPA	
Mini turbine head	×	
Low reach floor tool	\checkmark	
Debris slot	\checkmark	
Brush control	\checkmark	
Telescope reach wand	\checkmark	
Bin capacity	2.5 litres	
Main motor	1200W	
Brushbar motor	80W	
Cable length	7.7m	
Maximum reach	11.99m	
Height	1120mm	
Width	347mm	
Depth	384mm	
Operational weight	8.65kg	

Electrostatic discharge

With the advancement of technology within Dyson products, more sensitive electronic components are being used. Certain variants of Dyson products (**including DC15**) contain Printed Circuit Boards (PCBs) which are made from electronic components that are susceptible to damage by electrostatic discharge.

Electrostatic Discharge or ESD is described as the rapid transfer of electricity from one object to another. Static electrical charge is created by the contact and separation of different materials e.g. the motion of walking can create static electricity, as shoes contact and then separate from the floor. Static electricity is released when two charged objects make contact and this is when sensitive electrical components can be irreversibly harmed.

The damage caused by ESD varies from a product not functioning to a depreciation of the life of a product; therefore it isn't always possible to detect ESD damage.

In order to protect relevant Dyson product and components/assemblies from ESD damage, the following precautions must be taken when repairing or examining product:

Using a socket polarity tester, verify that there is an adequate earth. If there is not an adequate earth, use an alternative adequately earthed socket.

All repair/investigation work must be carried out on an anti-static mat that is earthed via an earthing plug.

All personnel repairing/investigating Dyson product must wear an anti-static wrist strap that is connected to an earthed anti-static mat (see Fig.1, page 3).

Product overview

Technical info

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ESD sensitive Dyson components/assemblies must also be handled and stored appropriately. All ESD sensitive components will be labelled with the following logo:



It is important these components are taken out of the packaging only when needed and when suitable earthed ESD protection is being worn/used. Should a component/assembly need to be placed down during machine repair/investigation it is vital that it is placed on the earthed anti-static mat.

Electrical testing

General safety note

All operating instructions contained within this service manual are intended solely for the use of adequately trained personnel. The instructions assume the service engineer has the correct tools and test equipment to complete the activity. Prior to using any consumer mains supply sockets you must ensure the socket is tested for correct polarity.

Testing DC15 for correct insulation

The following insulation tests MUST be carried out prior to and on completion of all services to DC15, and BEFORE any functional checks. You must ensure that a full visual inspection of the product is completed prior to any service activity.

Ensure at all times during service and testing that consumers, pets and children are not exposed to any live electrical supply.

Insulation test points



Test results

An insulation test reading of between 2 $\mbox{M}\Omega$ and infinity is acceptable.

A reading of below 2 $M\Omega$ is not considered safe and further investigation, rectification and testing must be completed before the product is used.





Electrical circuit



Electrical resistance values

COMPONENT	TEST BETWEEN POINTS		OHMS
POWERCORD ASSY	PLUG, LIVE PIN	1	MAX 1 Ω
POWERCORD ASSY	PLUG, NEUTRAL PIN	5	MAX 1 Ω
ON/OFF SWITCH	1	2	MAX 1 Ω
BRUSHBAR SWITCH	3	4	MAX 1 Ω
INTERNAL CABLE (LIVE)	2	8	MAX 1 Ω
	8	9	
INTERNAL CABLE (NEUTRAL)	5	7	MAX 1 Ω
	7	10	
INTERNAL CABLE (BRUSHBAR	3	6	MAX 1 Ω
SWITCH, RED)			
MOTOR BUCKET SEAL/LOOM	9	VAC MOTOR	MAX 1 Ω
ASSY (LIVE)			
MOTOR BUCKET SEAL/LOOM	10	VAC MOTOR	MAX 1 Ω
ASSY (NEUTRAL)			
ACROSS VAC MOTOR	А	В	APPROX. 8 Ω
UPRIGHT SWITCH LOOM	11	UPRIGHT SWITCH	MAX 1 Ω
UPRIGHT SWITCH LOOM	12	UPRIGHT SWITCH	MAX 1 Ω
PCB TO YOKE LOOM (YELLOW)	13	14	MAX 1 Ω
PCB TO YOKE LOOM (ORANGE)	15	16	MAX 1 Ω
YOKE LOOM (BLACK)	14	BRUSHBAR MOTOR	MAX 1 Ω
YOKE LOOM (WHITE)	15	BRUSHBAR MOTOR	MAX 1 Ω
ACROSS BRUSHBAR MOTOR	С	D	APPROX 70 Ω

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Electrical fault diagnostic

1) When DC15 is switched on in the upright position, the brushbar motor is off. Tilting the machine into normal vacuuming mode will automatically operate the upright switch, turning the brushbar motor on. The brushbar motor can be switched off using the brushbar switch.

2) The vacuum motor of DC15 is fitted with a heat sensitive Thermal Cut-Out (TCO). This will shut the motor down for up to 60 minutes if it reaches a temperature >96 degrees celcius. Excessive temperatures within the motor are usually caused by machine/filter blockages.

3) The brushbar motor of DC15 is fitted with a current sensing protection circuit that will shut the brushbar motor off if it is put under an excessive load (blocked/seized brushbar etc.). The protection circuit will remain off until it is reset. This is achieved by: (a) pressing the brushbar switch.

(b) pressing the on/off switch.

(c) standing the machine upright and then re-tilting the machine into normal vacuum mode. If the cause of the brushbar motor cut-out is not rectified the protection circuit will repeatedly reactivate, preventing the brushbar from turning.

4) The fuse on the PCB assy is fitted for safety purposes. If the PCB fails, and the brushbar motor seizes, the fuse will blow, cutting power to the brushbar motor.

Electrical fault diaignosis

Note: all 'connection' numbers and 'continuity' checks refer to the illustrations on page 4.

No machine power (vac motor and brushbar motor off).

1) Check for damage/electrical failure to the plug/fuse/powercord/connections to on/off switch and the mechanical switch actuation.

- 2) Check for a loose connection at points 1,2 and 5.
- 3) Check continuity of powercord on/off switch/and internal cable.

No power to the vac motor (brushbar motor on in tilt position).

1) Check connections at points 9, 10, A and B.

- 2) Check continuity of internal cable and motor bucket sealloom assembly.
- 3) Check vac motor continuity and motor brushes, windings, commutator etc.

No power to the brushbar motor (motor vac on).

- 1) Check connections at points 7,8,13,14,15,16, C and D.
- 2) Check the continuity of the internal cable, PCB to yoke loom and the yoke loom assembly.
- 3) Check brushbar motor continuity and motor brushes, windings, commutator etc.

If all of the checks listed are correct the PCB will be at fault.

Brushbar motor on in upright position (switches off with brushbar switch).

- 1) Check connections at points 11 and 12.
- 2) Check continuity of upright switch and upright switch loom.
- 3) Check the actuation of the of the upright switch.

If all of the checks listed are correct the PCB will be at fault.

Brushbar switch does not switch brushbar motor off in tilt position.

1) Check connection to brushbar switch at points **3,4** and point **6**. If all of the checks listed are correct the PCB will be at fault.

Brushbar motor on permanently (will not switch off).

1) Check for a short in the upright switch loom.





General notes



Before attempting any repairs it is vital to ensure that the product is totally isolated from the mains supply and that accidental reconnection cannot occur.



Where this symbol is shown ensure ESD protection is used.



Assembly guide

The fitting notes contained within this service manual are separated into the following assembly sections:







service manual

Removing and dismantling the yoke assembly





(10) Prise the large and small gimble clips out of either side of the cleanerhead top hinge using a thin flat bladed screwdriver.





Remove the yoke assembly from the rear of the cleanerhead top hinge.



¹³ Prise the rear of the hose guard out of the yoke using a thin flat bladed screwdriver.



assembly out of the same side of the yoke.

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Prise the other end of the gimble lock arm assembly out of the yoke using a thin flat bladed screwdriver, ensuring that you retain the gimble lock arm spring.



Carefully remove the actuator arm spring from the gimble lock arm using a thin flat bladed screwdriver.

Dismantling the cleanerhead













²¹ Undo the four black screws in the top of the brushbar motor cover.





²³ Lift out the two brushbar motor top mounts from inside the brushbar motor cover assembly.



²⁴ Remove the cleanerhead spring from the top of the brush housing.















Carefully remove the brushbar motor bottom mount from inside the brush housing.



Fitting notes







³³ Lift the four soleplate wheels and axles out of the underside of the brush housing. Slide the wheels off the axles.





³⁵ Slide out the brushbar motor front mount from the front of the brush housing.



³⁶ Release both bumper catches from the front of the brush housing using a Torx screwdriver.







Assembling the cleanerhead



slots at the front of the brush housing.



40 Align the screw bosses on the bumper with the holes on the brush housing. Firmly press until the catches clip into position.











Fitting notes

⁴⁹ Lower the brushbar motor assembly onto the brushbar motor bottom mounts. Attach both yoke loom wires onto the end of the brushbar motor.





in the brush housing. Locate the grommet onto the brushbar motor assembly. Press the sheaving into the channel on the brush housing.













Push the endcap assemblies onto the ends of each brushbar and twist into place. Then retighten the endcap fasteners.





Assembling and refitting the yoke assembly



Place the actuator arm spring onto the actuator arm. Using a thin flat bladed screwdriver, position the other end of the spring between the two retainers inside the gimble lock arm.



⁶⁰ Lower the gimble lock arm spring into the gimble lock arm assembly.





and the actuator arm into the yoke. Press the gimble lock arm spring



Clip the other end of the gimble lock arm assembly into the side of the yoke.











Fitting notes



Refitting the cleanerhead



Locate the side of the yoke between the ball and valve assembly. Push the cleanerhead into position.



The cleanerhead is positioned correctly when the hole in the side of the yoke assembly surrounds the detail on the valve assembly.





yoke to the yoke bracket.



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Removing the ball and motor bucket

The following parts should be removed, as previously shown, before continuing:

cleanerhead and yoke assembly, (pages 6-7)





Prise the halves of the ball assembly apart using a large flat bladed screwdriver whilst pressing the release catch in using a torx screwdriver. Repeat on the other side of the ball assembly.



Fitting notes









Force the valve assembly over to one side. Release the motor bucket axle from the hole in the valve assembly. Firmly release the motor bucket from the side of the duct.



Dismantling the motor bucket





⁸⁸ Undo the five screws in the motor bucket.











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Assembling the motor bucket



Align the pip on the base of the motor mount with the hole in the top of the motor and push the motor mount onto the motor.







Position the top of the motor bucket seal/loom assembly into the channel on the motor mount.



Stretch the motor bucket seal/loom assembly around the motor and locate the end into the fancase seal. Note: when seated correctly the motor sits at an angle within the motor bucket seal/loom assembly.









 Slide the small bearing onto the motor bucket axle. Lower both parts into the front of the motor bucket base.



Ensure the seal covers all edges of both parts. Refit the five screws.



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Refitting the motor bucket and ball







¹¹² Lower one half of the ball assembly onto the large and small bearings. Repeat for the other side. Snap together and refit the four screws.



duct and fix in place with 3 cable ties. Important: ensure the upright switch loom is located under the screw boss.





edges. Special care should be taken at the points highlighted. Refit the 3 screws ensuring the shorter one fits into the top hole. Refit the cleanerhead and yoke as previously shown.

Removing and dismantling the axlestand





Carefully remove the circlip from the end of the stabiliser axle using a pair of circlip pliers. Remove the stabiliser wheel and two washers.











Removing the stabiliser

23 Remove the screw in the static cover.

Remove the screw in the static cover. Slide the static cover out from under the yoke spigot.







¹²⁵ Push the side of the stabiliser out the rear of the valve assembly.



Refitting the stabiliser





¹²⁸ Align the detail on the other end of the stabiliser with the rear of the spring mount assembly. Slide into place. Refit the screw and washer.



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the channel on the end of the stabiliser. Keep it held in place in the channel whilst twisting. Continue to twist until the end of the circlip protrudes around the other side of the channel. Assembling and refitting the axlestand



¹³¹ Fit the pedal spring onto the cruciform on the axlestand. Lower the pedal onto the axle stand ensuring the cruciform on the base of it aligns with the spring.



¹³² Press the pedal very firmly onto the axlestand until both release catches snap over the retainers.



Align the base of the axlestand with the top of the stabiliser. Slide the stabiliser axle, a washer, a stabiliser wheel, a second washer and a circlip into the channel made by both parts.





the stabiliser axle. Carefully refit the circlip.



Fitting notes

¹³⁵ Refit the axlestand spring onto the hook in the axlestand in the direction shown. Then carefully refit both legs into the holes in the stabiliser.



Removing and dismantling the valve cuff and valve seal





¹³⁸ Press the release catch inwards and remove the valve pipe from the valve assembly.



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Locate the end of the screwdriver under the retaining clip. Prise the retaining clip off the end of the valve cuff.





Assembling and refitting the valve cuff and valve seal



Locate the tab on the valve seal into the retainer on the valve cuff. Lower the remainder of the valve seal into the valve cuff. When fitted correctly, there should be a gap between the top of the valve cuff and valve seal.



Position the retaining clip behind the channel below the duct valve seal. Lower the valve cuff and valve seal into the channel. Locate the retaining clip over the end of the cuff. Slide the retaining clip onto the cuff until it locks in place.





Removing and dismantling the valve assembly

Before continuing, the following parts need to be removed as previously shown: cleanerhead and yoke, (pages 6-7) ball and motor bucket, (pages 20-21)



¹⁴⁸ Carefully unhook the front spring from the peg on the valve assembly.



Pull the tront tace of the moving cover off the retaining peg on the rear of the valve assembly.





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152 Remove the wand from the hose/u-bend assembly. Lower the hose/u-bend assembly. Then pivot it out of the retaining clip.





Assembling and refitting the valve assembly



¹⁵⁵ Push the stabiliser to one side. Slide the valve assembly into the base of the duct below the duct valve seal. Refit the three screws.



¹⁵⁶ Locate the stabiliser into the side of the valve assembly. Slide the spring mount assembly into the side of the stabiliser. Refit the screw and washer.







motor bucket and ball, (pages 26-27) cleanerhead and yoke, (pages 19-20)

Removing the powercord assembly and switches



¹⁶¹ Remove the wand handle from the top of the duct. Undo the three screws in the rear of the duct. Gently push the switch cover release catch using a torx screwdriver.



product. Lift out both of the switch buttons.





¹⁶⁴ Disconnect the neutral wire from the internal cable.



Refitting the powercord assembly and switches

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ensuring that the end of the outer insulation extends past the screw boss. Slide the protector into the side of the duct.









wires neatly within the locators on the duct.



¹⁷⁰ Align the base of the switch cover with the locators on the duct. Once located lower the cover onto the duct.



Removing and refitting the internal cable



Remove the duct cover and duct seal from the side of the duct. Carefully slide the PCB out of the duct.



Carefully detach the three wires from the top of the PCB. Detach the internal cable from the vac motor loom. Carefully snip the cable tie.



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¹⁷⁵ Locate the end of the internal cable into the side of the duct. Push the grommet into the duct. **Important:** ensure that the grommet is adequately sealed within the duct as this is an airway.



Re-attach the internal cable to the PCB. Connect the live and neutral wires to the vac motor loom. Hold the wires together with a cable tie. Dress all wires neatly into the duct. Important: ensure the upright switch loom is seated under the screw boss. Refit the duct cover and seal.



Removing and refitting the PCB to voke loom



¹⁷⁸ Remove the duct cover and duct seal. Carefully snip the 3 cable ties that hold the looms together. Detach the PCB to yoke loom from the PCB.



¹⁷⁹ Undo the two screws that hold the yoke assembly onto the yoke bracket. Slide the yoke cover off of the yoke.







¹⁸¹ Twist the yoke bracket within the channel until the grommet is exposed. Release the grommet from the duct. Pull the PCB to yoke loom out of the duct. 182 To refit the PCB to voke loom locate the end into the hole in the base of the duct. Locate the grommet into the hole ensuring it is adequately sealed. Reconnect the loom to the PCB. Dress all wires neatly within the duct and hold with 3 cable ties. Refit the duct cover and seal

183 Re-attach the PCB to yoke loom to the yoke loom as previously shown. Refit the yoke cover and the yoke bracket screws.

Dismantling the duct assembly



184 Remove the wand handle assembly and hose/u-bend assembly from the rear of the duct. Remove the cyclone and bin assembly from the front of the product. Release the retaining catch on the rear of the post filter cover only, using a thin flat bladed screwdriver.



¹⁸⁵ Place the cyclone and bin assembly back onto the post filter cover without clipping it onto the cyclone release catch. Use the cyclone and bin assembly to twist the post filter cover over the two remaining catches on the front of the duct. Once released the post filter cover can be lifted off the duct.

Once you have removed the post filter cover assembly you should continue to remove the following parts from the duct, as previously shown, before continuing: cleanerhead and yoke (pages 6-7) motor bucket and ball (pages 20-21) axlestand and stabiliser (pages 27-29) valve assembly (pages 33-34) powercord assembly and switches (pages 35-36) internal cable (pages 37-38) PCB to yoke loom and PCB assembly (pages 38-39)





189 Peel the inlet seal off the side of the duct.



duct assembly off the side of the duct. Peel the seal of the duct filter.









Fitting notes

¹⁹³ Release both catches on the front of the lower cable winder. Slide the lower cable winder off the rear of the duct.



Hose/u-bend and wand assemblies



Press both hose release catches and slide the wand handle assembly out of the hose/ubend assembly.



¹⁹⁶ Push the wand catch backwards until it releases from the wand handle assembly. To refit, push both locators on the catch into the retainers on the wand handle assembly.



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Cyclone and bin assemblies



cyclone assembly. When refitting the FDC seal ensure the top of the seal covers all the ribs on the base of the cyclone assembly.



base of the bin until it detaches.



Assembling the duct assembly



Fit the spring onto the crucitorm on the cyclone release catch. Clip one leg of the catch into the retainer on the duct. Twist the other leg into the duct.



Align the sides of the lower cable winder with the channels on the inside of the duct. Slide onto the duct until the release catches lock into place.



²⁰³ Refit the duct/valve seal onto the side of the duct. Note: the side with the ridge faces outwards.







Fitting notes

²⁰⁵ Locate the thick part of the wall on the filter duct into the wide channel inside the exhaust seal. Fit the exhaust seal around the edges of the filter duct ensuring the filter duct sits centrally within the seal.







208 Locate the ends of the upright switch loom into the hole on the inside of the duct. Connect the upright switch loom to the two outer terminals of the upright switch.



209 Lower the upright switch onto the retaining pegs on the inside of the duct. When fitted correctly, the switch lever should point towards the rear of the duct. Pull the upright switch loom through the other side of the duct until the grommet is adequately sealed. Fit the upright switch actuator onto the third retaining peg. When fitted correctly the actuator should point towards the front of the duct. Refit the upright switch cover and long screw.



Once you have fitted all the previous parts to the duct, you should continue to fit the following main assemblies in order as previously shown: valve assembly, (pages 34-35) stabiliser and axlestand, (pages 29-31)

motor bucket and ball, (pages. 26-27)

Once the previous main assemblies are fitted, you should continue to fit the following parts: internal cable and PCB assembly, (page 38) PCB to yoke loom, (page 39) powercord assembly and switches, (pages 36-37) cleanerhead, (pages 19-20)





Cleanerhead and yoke assembly





Duct, valve and stabiliser





Motor bucket and ball





Cyclone, bin, wand and hose/u-bend assemblies



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Parts