

STAR WARS

SO, YOU WANT TO BUILD AN **ASTROMECH?**

A BEGINNERS GUIDE TO THE
R2 D2 BUILDERS CLUB



R2-D2 Builders Club

COVERING
ALL ASTROMECH MODELS
AS WELL AS
EVERYTHING ELSE
YOU NEED TO KNOW
ON YOUR WAY TO
AWESOME

STAR WARS

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Astromech.net = The R2 Builders Club

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For more information about R2-KT
visit R2KT.com

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Astromech.net

The Official Website of the R2-D2 Builders Club

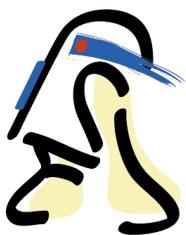


Before you buy or build anything, you will want to join Astromech.net and the R2-D2 Builders Club Yahoo Group. Contained within these two sites is the most comprehensive collection of R2 building information ever. If you can't find an answer to your questions here, then you're not looking hard enough. Both of these sites are run by the R2 Builders Club and are free to join.

After joining, it will be beneficial to read, read, and read even more. This guide is just an appetizer; the forums, tutorials, and blueprints available on Astromech.net and the Yahoo Group are the meat and potatoes.

Many builders suggest that you spend two to three months reading builder's logs, tutorials, asking questions, and just looking at pictures before you begin working with parts.

You will want to start right away, but trust me, a lot of research will save you time, money, and frustration in the long run.



R2-D2 Builders Club



Both sites will provide you with detailed blueprints, accurate measurements, sounds, and tutorials that are essential for your build.

The R2 Builders Club was founded in 1997.

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What an incredible smell you've discovered.

That's the smell of all the blood, sweat, and tears R2 Builders have put into creating the feistiest little droid in the galaxy.

Building your own astromech can be an intimidating task. There are countless "members" of the R2 Builders Club that never even begin their droid because they don't have the time, they don't think they have the skills, or they just don't know where to begin.

This guide is designed to help the new builder get started.



What's going on, Buddy?

There are thousands of R2 builders around the world. Make sure you check the "Builder's Map" on Astromech.net and find out if there's a builder nearby. There's nothing like working with a friend when you've got a bad motivator.



There's no such thing as luck.

Learn from the mistakes and successes of others. Your greatest resource is the forums at Astromech.net. You will find the answer to all your building questions there. And if you can't find the answer, then ask your question. Many builders are ready and willing to help.



There are over 8000 members in the club.

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Look Sir, Droids!

Many builders want their own R2-D2. Who wouldn't? R2 is awesome! But there are other astromechs in the galaxy.

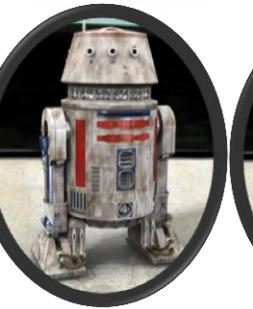
NOT ALL R2 UNITS ARE BLUE AND WHITE



R3 UNITS HAVE CLEAR DOMES



R5 UNITS ARE UNIQUE, BUT SOMETIMES HAVE BAD MOTIVATORS



THERE ARE EVEN R6 & R7 UNITS

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Bring Me The Hydrospanners!

There are a lot of options for your building materials. Builders within the club have used aluminum, wood, styrene, resin, fiberglass, and even foam. You must decide what material is best for you, but here are some suggestions.



Aluminum droids are very sturdy and look great, but they can be expensive. And unless you have a machine shop, you will need to buy most of the parts instead of making them yourself.

Wood can be used to build your frame and legs. The wood eventually will be covered up by either aluminum or styrene.

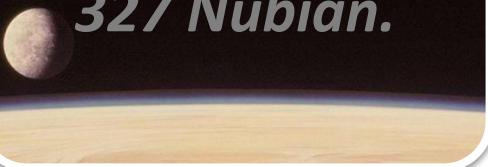


Styrene is light and easy to work with. An all styrene droid is probably the cheapest kind and is the most accessible build for those that don't have a machine shop available.

Be cautious of parts sold on Ebay.
They are not club approved.

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*I need parts
for a J-type
327 Nubian.*



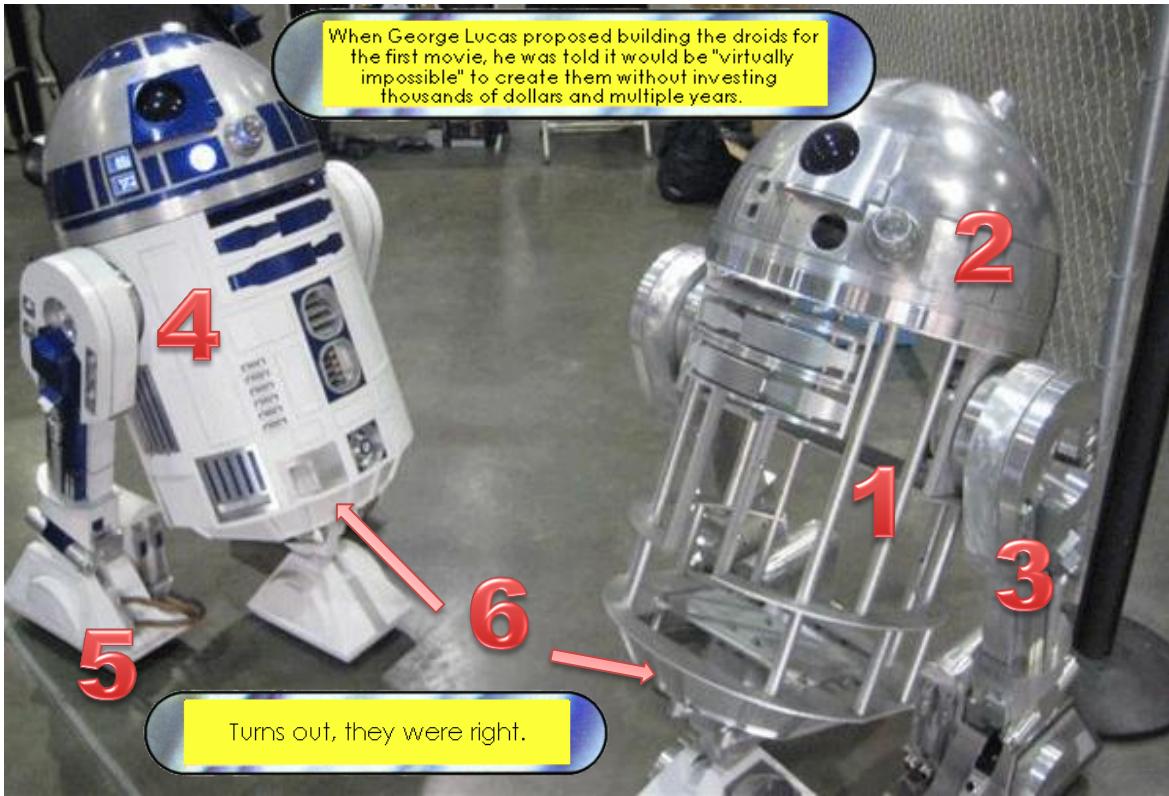
One of the most overwhelming decisions for a new astromech builder is where to begin.

There's no right or wrong part to start with, but below a list of the major parts you will need to build.

Through Astromech.net you will be able to buy many parts. Some parts are "always available", some are made to order, but a lot are created and sold in "parts runs".

With that said, many builders make their own parts. It's surprising how many astromech droid parts can be made from scratch with the right materials and tools. Even though many parts can be bought on Astromech.net, it isn't just a "parts yard sale." You will get a lot of satisfaction from building your own parts with your own hands.

1 = Frame 2 = Dome 3 = Legs 4 = Skins 5 = Ankles & Feet 6 = Skirt



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It binds the galaxy together.

Let's start by looking at options for your frame. Many builders begin here because without a solid frame your droid will be unstable, plus every other part is connected to the frame.

Here are some popular frames that builders have used in the past:



A & A Frame

The pieces in the A&A kit are CNC cut out of PVC.



Com-8 Frame

This aluminum frame is great for an all-aluminum droid.



Wood Frames

Wood frames are strong enough to hold aluminum legs and domes as well. At times they are sold as kits, but blueprints for this type of frame can be found in the Yahoo Group.



Styrene Frame

This styrene frame can be hand built. All you need is some 3mm styrene and some Weld-On 3. The plans for this frame can also be found on the Yahoo site.

PVC Frame

Even a large PVC pipe can be used as a frame.



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The dome is the most coveted part of the astromech droid and the one part that many builders choose to buy. The run on domes are very limited and they are not always available.



The 300mm Laser Cut Dome

This aluminum dome is titled the 300mm dome because of its height.

An R&J dome was used in Episode III.



The R&J Fiberglass Dome

Fiberglass domes are nearly indestructible.



Laser Cut Styrene Dome

This is a great dome for the builder on a budget. This dome is vacuum formed using the same specs as the 300mm aluminum dome.



Alternate Domes

Not all domes are round, in fact, some domes like the R4, R5, or R6 can be made by hand.



R4 Dome



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If only you had attached my legs, I wouldn't be in
this ridiculous position.



Wooden legs are strong enough to hold aluminum frames and can be hand-made or cut using a CNC machine. Many builders will cover them with thin styrene.

Aluminum legs are very strong and can hold any frame. You would most likely have to buy these as part of a "parts run".

A 2-3-2 droid can extend and retract its center leg.



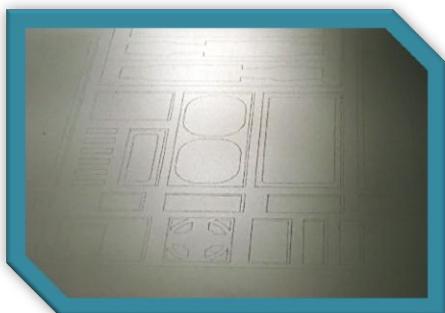
Styrene legs can be made by hand and should only be used for an all-styrene astromech. Once again, be sure to visit the Yahoo group for the blueprints.



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I beg your pardon . . . what do you mean, I'm naked?

Skins are not only needed to cover up your frame; they also provide stability to the astromech's structure. Most skins will come in two parts: an inner skin and an outer skin. The two skins together give the droid's body the textured look of doors and panels and if done correctly, can be made so that those doors actually open up.



Chani Skins - These are a budget set of skins that are scored using a plotter. They are easy to cut out, in fact most of the parts will "pop" out with a slight bend to the score line.



Here is a set of Chani skins on a styrene frame.

DIY Skins - You can also cut your own skins using 1mm thick styrene. You can find the blueprints to the skins on the Yahoo! club site.



Aluminum Skins - Just like you would think. These skins are pretty much like the styrene skins above, but they are aluminum.



Six aluminum R2s were built for ANH. Eight fiberglass R2s were built for ESB.

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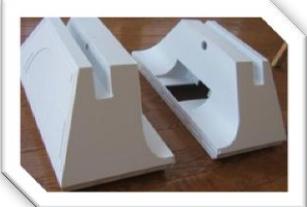
Don't shoot! Don't shoot! Will this never end?

The journey to completing your astromech can take a long time. It will usually take a hard working droid builder about 10 to 24 months to complete their droid depending on the materials being used. So be patient, you will get as much joy out of the journey as you do the final destination.

Many of these parts can be built from scratch or can be purchased from a parts supplier. Builders have used wood, styrene, resin, aluminum, and steel for these parts. In any case, you will need these parts and more.



**Styrene Center
Ankle and Foot**



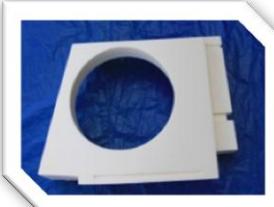
**Styrene
Main Feet**



**Fiberglass
Skirt**



**Resin
Octagon Ports**



**Resin
Radar Eye**



**Resin
Utility Arms**



**Aluminum
Booster Covers**



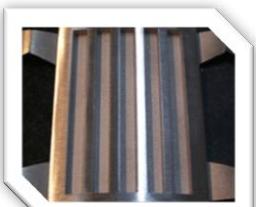
**Resin
Holo Projectors**



**Aluminum
Ankle Cylinders**



**Aluminum
Leg Struts**



**Aluminum
Side Vents**

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*You'll be malfunctioning within a day, you
nearsighted scrap pile!*

Whether it's the overwhelming number of options for your electronics, the lack of electronics knowledge, or not knowing what you need to get your droid moving, the electronics side of your build can be very intimidating. But fear not, even the most novice builder can bring their droid to life, without too many headaches.



The first thing you need to ask yourself is, "What do I want my droid to do? How do I want him to come alive?" Some builders are happy with making their R2 unit roll around, spin his dome, light up, and make sounds. Other builders want doors and panels to open. Some want a fully functioning astromech with moving arms, life form scanners that rise out of the dome, and even a fire extinguisher. There are even a few builders that are working to make their droid fully automated.

In this guide, you'll be given just the very basics.

The electronics for your astromech can be broken down into 3 segments: Animatronics, Lighting, and Sound.

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Animatronics – A rolling droid

To get your astromech rolling you will need some version of the following: a transmitter, a receiver, speed controllers, & motors.

Basically, the transmitter allows you to send signals to a receiver inside your droid.

The receiver activates the speed controllers, and the speed controllers tell your motors what to do.

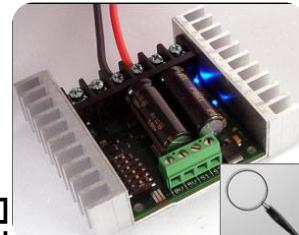
Spektrum & Futaba make model airplane transmitters. And even a wireless PS2 controller can be used as a transmitter. The Spektrum & Futaba transmitters would most likely come with a receiver. PS2 controllers would need a different type of receiver; some builders use one from <http://www.cheapcontrolsystems.com/>.



There are a number of speed controllers available. The type you buy will depend on the weight of your droid. Dimension Engineering makes speed controllers that are popular among many builders. The Sabertooth 2x12 speed controller should be sufficient for styrene builds, but for wood and/or aluminum builds you will probably need something like a Sabertooth 2x25 speed controller.



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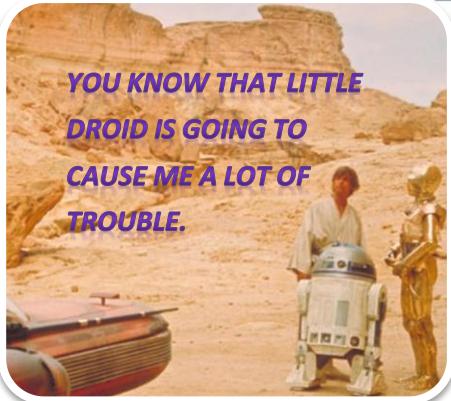


The motors that you will need depend on the type of droid you make.

Jaycar makes a motor that works well for styrene droids, but for heavier droids made out of aluminum or wood, many builders use electric scooter motors.



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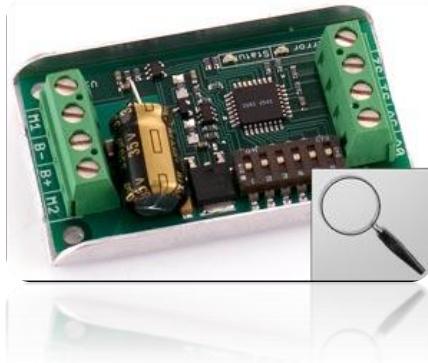


Animatronics – A spinning dome

The same transmitter that you choose to make your astromech roll can also be used to make your dome spin.

An R2 in 2-leg mode had Kenny Baker inside wobbling and animating the dome.

A separate speed controller is needed to make the dome spin. The SyRen 10 speed controller from Dimension Engineering is popular with many builders.



Pittman makes a motor that many builders use to spin their dome.

An R2 in 3-leg mode was an R/C unit with batteries, motors, and electronics.



You will need a power source to make everything run. The weight of your droid will determine what type of battery you will need.

For a styrene astromech a 12-volt battery is usually sufficient to run all of your electronics.



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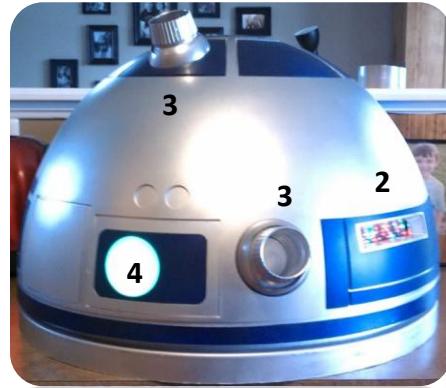
Lighting & Sound System

Make note that this guide is only providing the basic concept for lighting up your droid's dome. There are a lot of secondary lighting functions that you may want to pursue beyond what is outlined here.

Basic R2 domes light up in 4 places: Front Logic Display (FLD), Rear Logic Display (RLD), Holo Projectors (HPs), and Process State Indicators (PSIs).



- 1. FLD**
- 2. RLD**
- 3. HPs**
- 4. PSIs**



R2's sounds were based on the emotive sounds made by babies.

The details for your lighting & sound system are a little too complicated to explain here, but you should know that it is possible to create your own lighting kit or sound system.

Be sure to check out the tutorials available in both the Yahoo group and on Astromech.net.

The designer of R2's voice, Ben Burtt, has long considered R2-D2 to be "the toughest challenge" of all his sound work on the original trilogy.



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*You will never find a more
wretched hive of scum and villainy.*

Many if not all of your astromech parts can be made on your own and doing so can save you money and provide you with a great sense of satisfaction. But not everyone has the skill or the tools to “do it yourself”. For those that might need to buy their parts, “The Parts Junkyard”, located in the Astromech.net forums, is the place to look.

You can find parts runs, individual parts for sale, and even request parts that you want to buy. It would be great to have a list of all the parts and suppliers in this guide, but there are just too many to list here and the list is always changing as the members of the club grow.

Lastly, even though many builders in the club do supply parts, please note that the club members make these parts out of the goodness of their heart and for the betterment of the club. Part runs are not always available and depend on the extra time available to these members. They are doing us all a favor, so treat them right.

If you’re reading this, then you’ve most likely “taken your first step into a larger world.” May the Force be with you, always.



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R2 Builders' Droids



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R2 Builders' Droids



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Start your own collection of STAR WARS Astromechs and Astromech parts!

12 authentically designed droids with realistic STAR WARS colors. All have movable parts, scaled to fit inside the STAR WARS universe.

- R5-D4 with Tatooine weathering and Bad Motivator.
- R3-T7 with clear dome.
- R5-A1 (Death Squad Droid) with shining Death Star Finish.
- R2-A5 with Mos Eisley colorscheme and hidden Laser Rifle.
- R2-B1 with Royal Naboo battle damage.
- R4-M9 with Tantive IV navigation coordinates
- R2-D2 with movable legs and head that "clicks".
- R2-KT with inspiration and Laser Pistol.
- R2-M9 with R2.0 technology.
- R7-C1 with shining chrome finish.
- R6-T6 with non-screen used dome and removable cape.
- R3-A2 with Hoth weathering and shining eye.

LOOK FOR NEW
"EMPIRE
STRIKES BACK"
DROIDS
COMING SOON!



Astromech.net

