



## Chapter 1 - Construction

### The BBT Drive, Materials and Parts list

No special skills are required to build this loco, and no real special tools are needed either. I will ask your patience tool to be kept sharp. Talk to your loco; listen to what it's telling you. If things are not going well today, paint is not going on smoothly, or parts are not fitting properly, and your frustration is rising, this is a good indication that it is time to stop for today.

You will need a sharp knife, a razor saw, a drill and bits (power or hand is OK), long nose pliers, cutters, fine and course sand paper, some metal files, soldering iron and solder and a good deal of enthusiasms and courage. While I do not own a Dremel hand power tool, I suspect such a tool would be very useful to this class, especially in making those arched windows in the famous Mason cab!

### The Barry's Big trains Mason Bogie Chassis.



*The BBT Mason Bogie Drive Kit. Note in this photo that the side rods are a test article as is the tender truck. The Mason side rods and tender truck are still in development.*

This class covers the construction of the Mason Bogie using the Barry's Big Trains 2-6-6/0-6-6T chassis. You will need to order your chassis from Barry.

When ordering from Barry, please specify the following:

1. The chassis you need is either a 2-6-6T type or a 0-6-6T. Specify which type of Mason Bogie you'd like to build.  
If you're building your own version of a Mason type 0-6-4T or such, then request a chassis with no rear truck.
2. Specify if you will not need the wipers for track power (even if intending to use Battery, ask yourself if the wipers could be of use).
3. Specify if you want the Bachmann 'Balloon' stack for an extra \$10. These stacks are required for options 2, 3, 4 and 6.

The cost of the BBT Mason Bogie Chassis is \$250.00. USD.

This is a 'near cost' deal, and is heavily discounted from what the BBT drive actually costs.

### **BBT Chassis features:**

... and now for a word from our chassis designer and manufacturer - Barry Olsen!

We at BBT have been building damn good drives for the past eight years. They have served well, as I have been advised. We have been introducing improvements over the years and hope those improvements have served well also.

The Mason Bogie drive represents a whole new body of improvements, which were introduced/shown at the Queen Mary Show 2002 for the first time. Those of you who attended were able to see the preview model.

But, all of these improvements are really for the Bachmann 10th Anniversary locomotive. These items of improvement include; our first equalized front axle, a reed switch chuff sending switch, a vertical motor mount, double-thread worm gear, improved drive gear ratio, and countershaft drive...Standard!! The new drive makes use of the Bachmann Annie two-part siderod, so a price reduction is in order for that, but a countershaft drive and equalized front axle are additions to our standard offer.

The point is this; we have come this far and are now striving to build the best large-scale drives in the world. The signers to the Mason Bogie project who chose the BBT drive, are not guinea pigs, but will be my 'body of proof' of the progress we have made I want your feedback; problems?? pleased?? displeased??

We're making this drive available to the project at near cost, but your feedback will help us towards our goal. And, of course, the drives are warranted and fully supported by BBT.

The chassis comes as a complete 2-6-6 or 0-6-6 chassis, including the steam truck and tender truck, and whole loco frame and locomotive side rods and main rods (not the valve gear).

The M-B drive consists of the following:

The BBT drive:

- Vertical mount, Pittman motor.
- Equalized rear axle.
- Reed switch chuff sender (two magnets in back of blind driver).
- Countershaft Drive, Ratio 29.5:1.
- Ball Bearings on the flanged drivers, Thick-walled brass tube for the blind driver.
- Cap stock extension forward to carry the cylinders and rearward to finish the top of the drive.
- Lube port for gear inspection and lubrication.
- BBT Pickups for track power (delete option avail.).
- Two-part, hinged siderods and single mainrods and single crosshead.
- Bridge Stock (Capstock extrusion) frame from pivot (around motor body) back to Tender truck.

Tender truck

- Six-wheel tender truck, side frame and bolster castings (masters by Chuck Meckem), with pickups.
- 26" Wheels and axles by Sierra Valley Enterprises.

Pilot Truck BBT

- 24" SVE wheels, with pickups

These items comprise the BBT Drive kit for the Mason Bogie. Of Course laid out for the 2-6-6 configuration. Please specify if you wish to have the chassis made in a 0-6-6T format or any other format type.

Order your Mason Bogie BBT 2-6-6 & 0-6-6 chassis by e-mailing Barry at:

[barry@barrysbigtrains.com](mailto:barry@barrysbigtrains.com)

... or you can download and print an order form on Barry's web site:

<http://www.barrysbigtrains.com/orderinfo.asp>

Remember to also e-mail David Fletcher of your intent to start, and just a basic note about which version of Mason you'd like to build. This will help me tailor the MC2002 words to better serve your needs. E-mail David Fletcher at:

[fletch@myLargescale.com](mailto:fletch@myLargescale.com)

**Important Note:**

The BBT Mason Bogie chassis will be available as standard in Barry's product range and will remain available to modelers long after this class is finished. The chapters will remain on-line for future modelers to enjoy. As mentioned, the BBT Mason Bogie chassis is being offered at near cost for this project as a special discounted offer. This deal cannot be retained beyond the duration of the Masterclass. Make note that the BBT Mason Bogie chassis will return to normal price after Chapter 6 goes on-line in October 2002. All orders must be received by Barry prior to 15th October 2002 for you to get the discounted chassis.

After that time the chassis can be purchased along with any of the BBT chassis options at the normal advertised price.

The Discounted BBT Masterclass 2002 Mason Bogie Chassis offer till Oct 2002 - \$250.00 USD. The BBT Mason Bogie Regular Price is \$400.00. After October 2002, the chassis will return to \$400.00 USD.

## Commercial Parts required

There are surprisingly few commercial parts to be purchased for this model. A lot of this model will in fact be scratch made because there are few commercial parts that are the correct 1:20.3 size for our model. Most of the parts we're using, that are purchased from Hartland Locomotive Works (H-L-W) or Aristocraft, are very cheap at between \$3 to \$10 ea.

Together with BBT and CSC Innovations, we are exploring options of manufacturing some selected locomotive components that are not available commercially, that would be of benefit to class members as well as other 1:20.3 modelers. These will be mostly 1:20.3 detail parts. We will keep you up-to-date on new product developments during the class.

## Smoke Stacks

### 'As Built' - Small Diamond Stacks

If building either of the 'As built' versions of the 2-6-6T or 0-6-6T, with the small coal burning smoke stacks, you might like to kit bash the stack from the standard Hartland Locomotive Works 4-4-0. Please order the diamond stack from H-L-W by calling the parts dept and specifying the stack used on the Vonita Jean 4-4-0.



*The H-L-W Diamond stack - The unit to the right is standard H-L-W.  
The unit to the left is the same stack with some of the top removed  
to bash it into the Mason 'As Built' look.*

### Option 2, 3, 4 & 6 - Various Balloon Stacks.

We kit-bash the Nesmith, Congdon and NPC stack from the standard Bachmann 4-6-0 'Balloon' stack. Bachmann Parts dept is usually a busy place, and obtaining parts can be difficult if these parts are not immediately required for repair reasons. As such Bachmann have provided the MC2002 team with a cache of these Balloon stacks in advance for distribution to the MC2002 members. Please be sure to request the Bachmann 4-6-0 Balloon stack from BBT when ordering your chassis. The stacks cost is \$10.



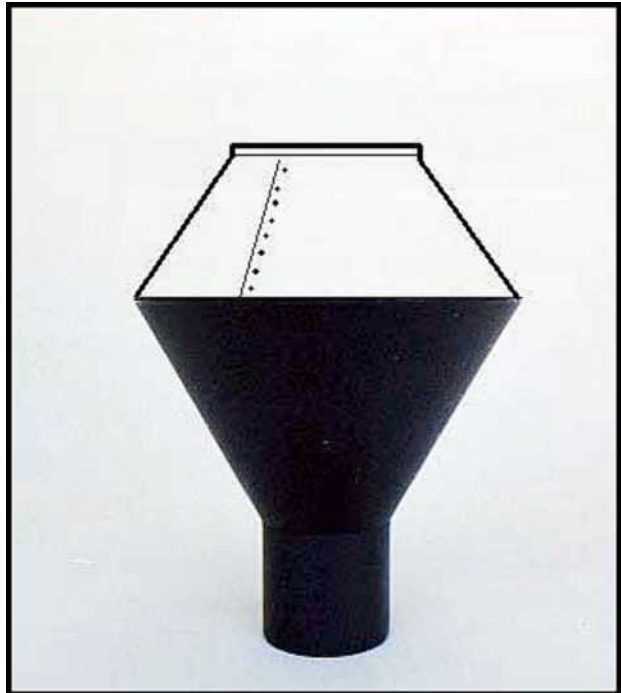
*The Bachmann 4-6-0 Balloon stack ready for modification.*



*Demo of the Bachmann Balloon stack made to be a DSP&P Nesmith Stack.*



*Demo of the Balloon stack made to be a DSP&P Congdon stack.*



*Demo of the Balloon stack made to be the Bully Boy NPC stack.*

### Other stacks options.

If building locos other than the specific 6 options listed, some other stacks options are:

1. Kit-bash your own Balloon stack using simple 'funnels' available at hardware stores.
2. For a long conical type stack, contact H-L-W parts dept and request the 'Inyo' stack. This type of stack can be seen used on some of the Mason Bogies in the Mason Archive.
3. For the classic straight 'capped stack' used on later era Masons such as the 2-4-4Ts of the Boston Revere Beach & Lynn, you cant go past the H-L-W straight capped stack.



*H-L-W Straight Capped Stack.*

4. Another option of a very stylish smaller Diamond stack is the D&RG C-16 stack. Contact Aritocraft parts dept and speak to Navin about the Delton C-16 'wood burner' Diamond stack. (This stack is not actually a wood stack, but that's what Aristo Call it!).Aristo C-16 diamond stack Part No, ART 80200-39, \$2.50.



*The Aristocraft C-16 D&RG Diamond Stack*

5. Other options are the very fine brass stacks made and sold as parts by Accucraft. These stacks come in various sizes, from 1:24 scale to 1:20.3. Check with Accucraft as to what is available.

## Mason Bogie Domes



*The two brass steam domes you need. One of these steam domes will be modified into a Mason sand dome. Note in this photo, the unit to the left is made by Aristocraft, the unit to the right is made by H-L-W. The H-L-W dome is more appropriate for use on the Mason Bogie, but the Aristo version can work.*

The domes required in our 6 options are actually only one type of dome! Note how the sand and steam domes on our Mason prototypes are virtually the same diameter?

Please order for two of the brass fluted steam domes from either Hartland or Aristocraft. Specify that you need TWO of the Steam Domes only...no sand dome is needed! This is the steam dome type used on the Aristocraft C-16 and the Hartland older style 4-4-0. The domes from both companies are very similar. If one company has run out, ask the other, or put your domes on order. As Hartland's are made in the USA, you'll likely be able to get a dome faster from them. You are really after the turned brass components, as we will be making the tubular sections ourselves to make the domes taller.

Note: The H-L-W dome profile is actually a lot closer to the true Mason style than the Aristo version. So if possible try to get the H-L-W (Hartland) domes.

Aristocraft Part No: Steam Dome, ART 80-200-20. Also ask for 80-200-22(whistle).

When calling H-L-W, just ask for the fluted brass steam dome, and whistle.

### **Other Mason Domes Options:**

If you are not building our specific 6 Mason types, but another from the Mason Archive, such as AA Denny, then you should in fact ask Aristo or H-L-W for the C-16 or 4-4-0 brass fluted sand and steam domes, one of each. In this way the sand dome will be smaller than the steam dome. Remember when following this option to order ONE steam dome with Whistle, and ONE Sand Dome.

The Aristo Sand Dome Part No: ART 80200-16 C-16 Sand dome \$2.50.

The remaining option is to scratch make your own domes using brass drawer handle escutcheons. Please refer MasterClass 2001 chapter 4 for instructions on how to make them.

## **Mason Bogie Hand Rail Stanchions**

There are two sizes of handrail stanchions required for this model. For cab door grab rails, you will need 4x Aristocraft C-16 brass hand rail stanchions, Hartland 4-4-0 brass stanchions or similar.

Aristocraft Brass Hand Rail Stanchions Part No: ART 80-200-23. (Hey Steve..I got the number right this time!!).

For the locomotive's boiler handrails, you will need a larger stanchion. This could be problematic. You will need 4 stanchions that are approx 9mm tall from boiler to handrail. Check what Ozark, Trackside, or Precision Scale, make in their detail parts. The stanchions that come on the Lionel 0-6-0T are perfect! Check also some of the brass parts from Billings Boats sailing ship parts, and also engineering supplies that supply live steam model making. As a last resort go ahead and use the C-16 handrail stanchions.

## **The Mason Bogie Cab**

The cab will be scratch made using 2mm styrene overlaid with 1mm wrapping and detail elements. This is a difficult part of the model to make. Full templates will be provided in which to trace and copy.

A wood cab kit option is provided. This wood kit, made by Vance Bass, is a laser cut, easy to assemble kit which is cut from exactly the same templates as used for the styrene cab. Please take up this option if the cab becomes too difficult, or you want a real wood cab. See Vance's e-mail and web site in the 'team' list at the beginning of this chapter.

## **Pilots (Cow Catchers)**

There are no detailed pilots of the right size and style available for our model, so we'll be scratch building the pilot in chapter 2. If you find that work too difficult or fragile, please contact Vance Bass about obtaining a wood pilot kit of the same profile.

**Other options** - Not Perfect, but can get you out of trouble!

Wimp's Way #1 - If you have a Bachmann 1: 20.3 4-4-0 pilot spare and wish to use it on this model, go ahead and use it, it is the correct size. We cannot however purchase these pilots from Bachmann as parts.

Wimp's Way #2 - The Bachmann 2-4-2 'Columbia' old time loco has a pilot that is the right size for this project, but is a little crude. Use it if you must. The same pilot type is used on the wood versions of the Bachmann 4-6-0.

For more modern versions of the Mason, such as the 2-4-4Ts etc, use the Bachmann 4-6-0 modern pilot. These are a great pilot that have the socket for the couple included.



The Bachmann 1:20.3 4-4-0 Pilot... use it if you can find one!



## Headlights

As noted in the prototype section, these Mason Bogies carried several styles of headlight bracket to support a variety of larger and smaller headlights. Generally the Mason Bogies began service fitted with a smaller box headlight. As larger smoke stacks were introduced and larger headlights were also adopted, the original headlight brackets were modified and later replaced by larger, yet plainer bracket to carry the larger headlights. The decision over the style of your model may affect what you have to either make or buy in the headlight department!

**The Smaller Box Headlights** - for use with the Original ornate Mason headlight bracket.

The finest Box Headlight ever made in large scale is readily available. It is the classic 1:24 scale box headlight used by H-L-W and Aristo on their C-16s and 4-4-0s. This Box Headlight model was developed as a 23" lens light, representing the larger headlight at 1:24 scale. It is also an appropriate size for a smaller type box headlight on our 1:20.3 models.



The Aristocraft Big Box Headlight.

The H-L-W unit is identical.

### Part Numbers

Aristocraft C-16 Headlight...

- ART 80200-40 – Box Headlight
- ART 80200-40A – Headlight Lens
- ART 80200-40B – Headlight Brass Rim.

Hartland Locomotive Works (H-L-W) Box Headlight...

Simply ask for the 4-4-0 Box headlight and all the trimmings with it.

**The Large Box Headlight** - For use on later era Mason Bogies on a plain headlight bracket.

There are no commercially available large box headlights that are large enough for our 1:20.3 Mason so we'll be scratch making the headlight. Specifically we are needing a Colorado style Box headlight with a 23" lens. Everything commercially available is smaller than that. If you don't want to make your own light, then go with the original smaller lights as noted above.

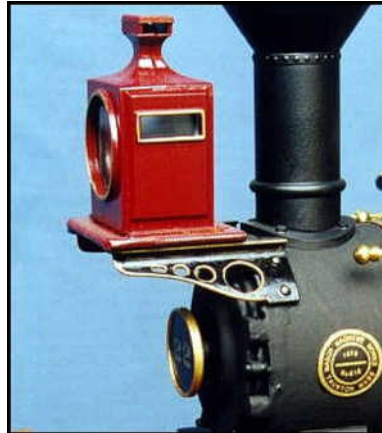
**Very Small headlights** - Used on the first Mason Bogies of the South Park.

The very small headlights seen in many of the photos of the Masons fitted with Nesmith stacks can be adopted on your model using the Bachmann 2-4-2 small box headlight. This same headlight is the one used on the LGB Moguls, and is also found of the 1880s style Bachmann 4-6-0.

### **Headlight Brackets**

We will be scratch making our Headlight bracket to Mason & C&S styles.

Trackside details make a nice large South Park style brass headlight bracket of a similar size to what we need (1:22.5 scale), the part No. is TD-90.



Trackside Details  
South Park style Headlight Bracket.

**Other options** - Not Perfect but will get you out of trouble!

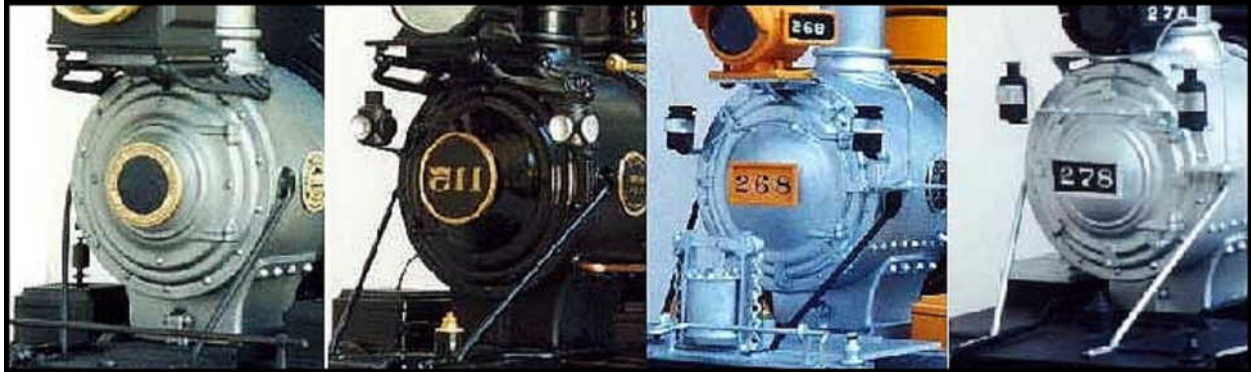
Wimp's Way #1 - The new Headlight bracket developed by H-L-W for the Lilly Belle 4-4-0 is exactly the right size and is essentially Mason ornate 'as built' style. This style of headlight bracket was used on many Mason 4-4-0s and 4-6-0s as well as the Bogie locos. I have a feeling that the prototype that Walt Disney used to build his Lilly Belle 4-4-0 was of Mason manufacture. This headlight bracket will serve your needs if you wish to avoid making your own. Please call Hartland parts to acquire one of these brackets...Specify you are after the 'Lilly Bell' headlight bracket, not the regular H-L-W brackets.

The Mason style headlight Bracket available from H-L-W. Note also the H-L-W Box headlight as an option, and also the H-L-W boiler front can be adapted for your Mason if you don't wish to scratch make your own. This boiler front is the correct diameter. In this view you can see the closeness of the ornate brackets, and smaller box headlight, appropriate for use on our 1:20.3 Mason Bogie early versions before the large 23" lens headlights were adopted. ⇒



## Smoke Box Fronts

The Aristo/Delton C-16 smokebox front is a very fine, adaptable and appropriately sized part for use on our Mason Bogie. The only problem is that you'll have to order the entire smokebox to get the smokebox front!! We'll cut the front off for use on our model. The Aristocraft C-16 smokebox Part No. is ART 80-200-28. Cost is \$10 (Make sure you get the wood burner version). This particular front is very adaptable due to the number of concentric circles found cast onto the front. By sanding off different detail one can obtain a wide variety of smokebox appearances.



All of the above smokebox fronts are adapted from the same Aristocraft C-16 smokebox part. Note that by sanding the details, adding clamps etc, the same part can have many faces. This part is suitable for the Mason Bogie.

We'll also demonstrate how to scratch make your own smokebox front in a Mason style for little cost.

**Other Options** - Not Perfect but will get you out of trouble!

**Wimp's Way #1** - The typical H-L-W 4-4-0 boiler front is the Right Size!! WOW! It's not the correct styling, but you could probably make a cute early version Mason with this front. This is an option if you wish to avoid making your own. Talk to Hartland parts about obtaining one. See photo under 'headlight brackets'.

**Wimp's Way #2** - Although parts are not available, if you happen to have a Lionel 0-6-0T superstructure in your junk box, not only should you use the brass handrail stanchions, but you can use the smokebox front too. This smokebox front is closer in style to the Mason style than the H-L-W unit.

*(The Lionel boiler front modified to fit the 1:24 scale model of the 'larger boilered' Mason. This same part will fit on our narrower boiler 1:20.3 Mason Bogie.) ⇒*



## Bells

We need quite a large bell for our Mason. We need only the bell itself, not the yoke. The Bachmann 4-6-0 bell is perfect if you happen to have a spare.

Also Ozark makes a Bell kit that is great and is the right size.

Part # OM-138, \$5.50.



The Ozark bell kit is to the left.  
The Bachmann 4-6-0 bell to the right.

## Other Materials Required:

I should note here that I have real difficulty working in fractions of inches, 1/16", 1/32" are just too damn hard to measure, so I work in millimeters (mm).

For a conversion factor, there are 25.4mm to the inch.

It would be of great advantage to everyone if you used a ruler for this project that had inches on one side and millimeters on the other.

The following list is the basic materials we'll be needing. You do not have to purchase everything up front. If you wish to see the context in how these materials are used, then await each chapter and then purchase what you need. You may find other ways/materials of doing the same model part. Also some of these materials may not be relevant to your 'altered' version Mason. There will also be a few odds and ends needed in addition to this list which we'll show along the way, nothing expensive, but I do need to show the context so you can purchase the correct looking parts. Specifically these are PVC pipes and brass escutcheons. Both available at hardware stores for little \$\$\$. You must see how we use these items before purchase.

### Styrene materials:

Charles Cole has put together a styrene kit for the Mason Bogie project. He has made up a packet with the styrene required to build the MB. Each kit has 2 sheets 12 x24 inches in 020,040,080, and an 8 x 12 inch piece of 0100. Contact Charles at [chuckger@msn.com](mailto:chuckger@msn.com) Kit price is \$13.94 shipping included.

If you'd like to get the styrene on your own:

Plastic/styrene sheet- available in A4 sheets from Evergreen. The same type of sheet styrene can be purchased from plastics manufacturers/Plexi-glass suppliers for a fraction of the cost. Ask for 'High Impact Polystyrene', it will come in pretty large sheets, enough for about 6 Bogie locos and other projects!. Not a lot of sheet styrene will actually be required in this project. The largest quantity will be in the 2mm thickness. An A4 sheet size (210mm x 297mm) is about 12"x8"...book size!

Styrene Thickness required:

- 2.5 mm thick get 1 A4 sheet (elements of the pilot and some details).
- 2 mm thick...about 6 A4 sheets worth (cab walls, side boards, tender sides and floor, cab roof)
- 1 mm thick,...about 4 A4 sheets worth.
- 0.5 mm thick...about 4 A4 sheets worth.

**Evergreen Styrene Products:**

Evergreen Styrene Plastic		
Qty	P/N	Description
4	09220	Sheet Styrene, .020" (0.5mm) 11" x 14" Sheet
4	09240	Sheet Styrene, .040" (1.0mm) 11" x 14" Sheet
6	09280	Sheet Styrene, .080" (2.0mm) 11" x 14" Sheet
2	19020	Sheet Styrene, .020" (0.5mm) 12" x 24" Sheet
2	19040	Sheet Styrene, .040" (1.0mm) 12" x 24" Sheet
3	19080	Sheet Styrene, .080" (2.0mm) 12" x 24" Sheet
1	19100	Sheet Styrene, .100" (2.5mm) 12" x 24" Sheet
1 pkg.	121	Strip Styrene, .020 x .030" (0.5 x .75mm) - 10 pieces
1 pkg.	222	Rod Styrene, 1/16" Dia. (.062", 1.6mm) - 8 pieces
1 pkg.	234	Tube Round, 7/16" Dia. (.438", 11.1mm) - 2 pieces
1 pkg.	236	Tube Round, 1/2 " Dia. (.500", 12.7mm) - 2 pieces
Notes:		
P/N 121 – Used to make rivet heads and domed bolt heads.		
P/N 222 – Used to make boiler stays and larger rivets.		
P/N 234 – Used to make tender corners.		
P/N 236 – Used to make the scratch-built Air compressor.		

**Plastruct ABS & Butyrate Products:**

Plastruct ABS Plastic		
Qty	P/N	Description
1	RT-12	Tubing Gray ABS, Rectangle. 3/8" x 1/4" (.375x.250", 9.5x6.4mm) 15" Len.
2	ST- 6	Tubing Gray ABS, Square 3/16" (.188", 4.8mm) 15" length
6	ST- 8	Tubing Gray ABS, Square 1/4" (.250", 6.4mm) 15" length
2	ST-12	Tubing Grey ABS, Square 3/8" (.375", 9.5mm) 15" length
1	TB- 3	Tubing White Butyrate, Round 3/32" OD, 1/20" ID, 1/50" WT 15" Len. (.090" OD, .050" ID, .020 WT / 2.4mm OD, 1.3mm ID, 0.5mm WT)
1	TB- 4	Tubing White Butyrate, Round 1/8" OD, 1/16" ID, 1/32" WT 15" Len. (.125" OD, .060" ID, .030" WT / 3.2mm OD, 1.5mm ID, 0.75mm WT)
1	TB- 6	Tubing White Butyrate, Round 3/16" OD, 3/32" ID, 3/64" WT 15" Len. (.188" OD, .090" ID, .045" WT / 4.8mm OD, 2.25mm ID, 1.12mm WT)
Notes:		
OD = Outside Diameter, ID = Inside Diameter, WT = Wall Thickness		
P/N RT-12 – Used to build part of the valve gear.		
P/N ST- 6 – Used to bolt and brace loco to its chassis.		
P/N ST- 8 – Used in building the loco framing.		
P/N ST-12 – Used in building the loco framing.		

## K & S Engineering Metals:

K & S Engineering Metals			
Qty	P/N	Description	
2	15044	Brass Rod, Round	1/100" (.010", 0.25mm) 12" length (0.2mm misprint)
2	0160	Brass Rod, Round	1/32" (.030", .750mm) 12" length
2	0162	Brass Rod, Round	1/16" (.060", 1.5mm) 12" length
2		Brass Rod, Round	5/64" (.080", 2.0mm) 12" length
2	0117	Copper Tube, Round	1/16" (.060", 1.5mm) 12" length
2	0118	Copper Tube, Round	5/64" (.080", 2.0mm) 12" length
2	0120	Copper Tube, Round	1/8" (.125", 3.2mm) 12" length

### Brass Rod:

K&S Metals or similar - purchase from model shops, get about 2ft length of each to start with.

- 1.5mm Brass rod (either model supplies, or go to a welding supplier and ask for 1.5mm brass welding rod...much cheaper than model suppliers).
- 0.75mm brass wire.
- 0.2mm brass rod. (K&S No. M30).

### Copper Tube:

Do not get copper rod. It must be tube because we squish the ends to make flat bolting surfaces.

- 1.5 mm dia. Copper tube, get about 2ft worth. (K&S No. 117).
- 2.0 mm dia. Copper tube, get about 3ft worth. (K&S No. 118).
- 3.0 mm dia. Copper tube, get about 2ft worth. (K&S No. 120).

### Tailor's Press studs:

Metal press studs (Dress snaps), 4mm dia, smallest ones you can buy at the local sewing/cloth shop. These will be used for stopcocks and valve handles!!

### Circuit Board mini nuts and bolts:

Tiny chrome nuts and bolts from Tandy electronics /Radio shack, use to bolt transistors to circuit boards etc, very small screws, required for a whole bunch of things!! Bolts are 1.5mm dia approx and 12mm long., get the nuts, the bolts and tiny washers.

**Brass Nuts and Bolts:**

Micro Fasteners - <a href="http://www.microfasteners.com/index.cfm">http://www.microfasteners.com/index.cfm</a>			
Part No.	Qty	Description	Price
FWB0	100	Brass, Flat Washer ID-.064" / OD-1/8" / THK-.017"	\$ 3.25
FWB2	100	Brass, Flat Washer ID-.089" / OD-3/16" / THK-.017"	\$ 3.25
HBB0008	100	0-80 x 1/2" Brass, Hex Head Machine Screws	\$ 6.60
HBB0208	100	2-56 x 1/2" Brass, Hex Head Machine Screws	\$ 5.70
HBS0009	100	0-80 x 9/16" Stainless Steel, Hex Head Machine Screws	\$ 6.95
HBS0216	100	2-56 x 1" Stainless Steel, Hex Head Machine Screws	\$ 9.25
HNB0080	100	0-80 Brass, Hex Nut 5/32" -Flats / .046" -Height	\$ 3.35
HNB0256	100	2-56 Brass, Hex Nut 3/16" -Flats / .063" -Height	\$ 1.55
HNBM0256	100	2-56 Brass, Hex Nut Small 5/32" -Flats / .063" -Height	\$ 2.50
HNBS0080	50	0-80 Brass, Hex Nut Scale 3/32" -Flats / .048" -Height	\$ 6.00
HNBS0256	50	2-56 Brass, Hex Nut Scale 1/8" -Flats / .075" -Height	\$ 6.00

Notes:

Minimum order quantities from this supplier is 100 pieces each part.  
 Approximate quantity needed of for project is 20 each.

Sulphur Springs Steam Models - <a href="http://www.sssmodels.com/fasteners/fasteners.html">http://www.sssmodels.com/fasteners/fasteners.html</a>			
Part No.	Qty	Description	Price

Notes:

**These are essential. Tiny brass nuts and bolts:**

- Get about 20 8BA brass nuts and bolts, about 1/2" long.
- Get about 20 10BA brass nuts and bolts, about 1/2" long.  
 You will need these for the valve gear.

## **Glues and adhesives:**

I only recommend two types:

1. Styrene weld Solvent Cement, supplied by Plastruct etc, this is a clear water like cement that welds styrene together, very easy to use and very neat and tidy.

CAUTION & WARNING. These welder type glues are based on a rather nasty chemical, M.E.K. that is a very dangerous substance. The Plastruct one might be a modified or re-engineered cement, but pure MEK has been linked to Cancer. Always use in a well-ventilated area. Pity, nothing glues styrene quite like the old MEK.

2. Aryldite (5 min type), this is a two-part epoxy type glue, which is best purchased in a pre-packaged syringe, making it easy to mix the two parts accurately. I use a lot of this on my locos. Wherever parts cannot be bolted to the loco, and solvent glue cannot fix dissimilar materials, then the Aryldite is used. I reinforce all joints and bonds from the inside with this glue. It's real strong.

I am not a big fan of super glue, or Cyano Acrylate, it's just too brittle, doesn't bond anything except fingers and fogs up clear windows, shiny Russia Iron paint etc. Not a good glue to use. We will however use a few drops here n' there on valve handles etc.

## **Painting:**

There will be discussions about painting as we work through this class. None the less, you should probably aim to use the paint manufacturers you are used to using. No surprises! In the next chapter we'll actually take a look at Mason's color schemes.

## **Locating Those Parts**

The following trains stores, mostly have on-line purchasing service, and 1800 phone numbers, however, I've provided the regular phone numbers so our non-US buddies can call too.

**Aristocraft Parts:** Call Ph (973) 351-9800, Ask for Navin, or anyone in Parts.

You can check exactly what parts you're ordering, by comparing my list of ART parts with the exploded C-16 diagram found at the Aristo Web site <http://www.aristocraft.com/>, need Adobe program to view exploded diagrams found under 'Tech Support', look under exploded diagrams for C-16.

**Hartland Locomotive Works Parts Dept (H-L-W):**

Speak to Phil Jensen (Da Maaan!!)

**H-L-W Parts Dept:** Ph (402) 571-2933

Call 9-12am Tues and Thurs only. When you're done speaking to him about parts, you'll have just spoken to one of Largescale's living legends. See the [myLargescale.com](http://myLargescale.com) [interview with him here](#).

**For all Ozark, Accucraft parts, & Precision Scale Parts, Call:**

**Caboose Hobbies** Ph (303) 777-6766

Also On-line purchasing service, (Which I use all the time) [www.caboosehobbies.com](http://www.caboosehobbies.com) go to shopping cart, look under Accucraft, Ozark, etc and look for the part SKU No's listed above.



## Metric Conversion Help

mm	Nearest Decimal In.	Nearest Fractional In.	mm	Nearest Decimal In.	Nearest Fractional In.
0.25	.010	1/100	2.5	.100	1/10
0.38	.015	1/64	3.2	.125	1/8
0.50	.020	1/50	4.0	.156	5/32
0.64	.025	1/40	4.8	.188	3/16
0.75	.030	1/32	6.4	.250	1/4
1.0	.040	1/25	7.9	.312	5/16
1.3	.050	1/20	9.5	.375	3/8
1.5	.060	1/16	11.1	.438	7/16
2.0	.080	5/64	12.7	.500	1/2

See you in a few weeks - When we start construction!!!

Good luck and good Hunting.

Fletch,

Melbourne Australia, June 2002.