Subject: Re: Jesus; Mary and Joseph; will he never go home!
Posted by Wayne Parham on Mon, 02 Aug 2004 19:28:37 GMT
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Oh, man, that's funny! And it kind of makes sense too, in an odd sort of way.About the power supplies, sure, let's kick it around some more. Maybe toss out a thread on the Tubes forum, or I guess it could be anywhere for that matter. I don't know anything about the DRD circuit, so maybe someone else will comment on it specifically. But I'd be happy to discuss power supplies in general.Supplies that have active regulation will sense the load and change their output so that the voltage is maintained constant. They have feedback; They're a closed loop system.But simple supplies without regulators are completely dependent on source and load conditions. If they have no load, they'll reach maximum voltage. Whatever voltage is presented to their inputs is rectified and the DC output reaches very near the transformed AC peak value.In other words, if a transformer is made to have a 12 volt secondary, it's made with about a 10-to-1 ratio, so 120 volts is stepped down to 12 volts. AC line current is 120 V RMS, which is about 170V peak. So the transformed peak value will be 17 volts. That's what I'd expect from an unloaded, unregulated 12 volt supply.As the load is increased, the voltage drops. It should come near the RMS value when fully loaded, but if the supply uses RC filters instead of LC filters, it will continue to drop as load current increases. So any unregulated supply has a pretty wide voltage tolerance. A 12 volt supply will probably be anywhere between 10 and 20 volts. If it is highly loaded, it can drop even more.I don't know anything about that DRD circuit, but you can see how if the tubes are all biased so they aren't drawing much quiescent current, the supply will tend to float high. There are actually probably a few power supply voltages present, at least a B+ and a filament voltage. There may be more. Any of the power supply lines might be connected to components that are sensitive or need a fairly narrow window of acceptable voltages. But if the circuit isn't regulated, an engineer might use an adjustable voltage divider or something so it can be set. Or maybe there is no adjustment provided, but the technician/hobbyist might set the voltage using hand-picked resistors on the bench.