

HOW THE BOSTON & MAINE USES BUDD RAIL DIESEL CARS

E. K. Bloss

General Mechanical Superintendent

Boston & Maine Railroad

The Boston & Maine has the largest fleet of Budd cars in the world at the present time, 103, and if we get a chance under the conditions that Mr. McGinnis so ably described this morning to get some more, we will. Whether we will have to wait for Mr. Symes' arrangement for financing or not, I don't know, but we are sold on the Budd cars.

We got the first ones in 1952 and we did with them just what we did with our Diesel locomotives when we first got those in the 1940s. When you have equipment in operation it is written off the books completely. That is, when it is as old as you are and I am and perhaps one generation older then you have a hard time to justify spending a lot of new money for equipment that you do not get much use of. Consequently this utilization thing comes right up on top.

When we first bought our Diesel locomotive we deliberately assigned them to the cream of the runs where they would really make some mileage. If you figure savings on the basis of cents per mile you have a big lot of miles to multiply by and you can save some money that way. When we got our first Budd cars we did exactly the same thing. We picked out main line through runs to put our first Budd cars into service. They did as they had done on the B&O and they proved their worth and their value. They eliminated the skeptics and the diehards who said "tin trains" certainly will never last very long.

However, we had another problem that was much worse. We had commuters and we still have commuters. I don't know whether we are fortunate or unfortunate in that for the last ten years about 6% of them per year disappear and you know where they are going. Mr. McGinnis told you this morning that they were going to private automobiles.

Our metropolitan transit authority which runs the local surface lines and subways in and around Boston is having as bad a struggle as anybody to make both ends meet. The only thing that keeps them going is the taxpayer's money. We don't have the taxpayer's money, but we have a lot of people to handle back and forth from their homes to their work. To give you some idea what it looks like I will hold up a chart (figure 1) and let you see it, even though it may not be too distinct. Figure 1 is a passenger traffic density chart of our railroad. We had to stretch Boston out to draw this line, but the empty circle is Boston. It is one place with a 24 track station that all of the traffic comes into in the morning and all of it goes back out in the afternoon. We have three main lines from Boston to Troy, New York, to White River Junction which

connects with the Canadian Pacific and goes on to Montreal and runs on up to the White Mountains. We also have a main line that runs from Boston to Portland and connects with the Maine Central for points east and eventually connecting up with the Canadian Pacific, going up to St. Johns and the Maritime Province. I want you to notice the traffic. The thickness of this line represents two million passengers per year if it is a quarter of an inch thick. Where is it on the main line? It is not enough to show on the Fitchburg division which is our main freight line. It is a pretty thin line up here and a fairly good line here, but here in a 25 mile circle is the heavy passenger traffic.

Gentlemen, that does not mean too much to you because you don't know how far that is, but let me tell you that it is 115 miles to Portland; 150 miles to White River and 198 miles to Troy. This commuter business is confined roughly inside of a circle with a radius of 30 miles just outside of Boston. In addition to the service that is performed on those three main lines, we have about a dozen branches all crowded into that little 30 mile circle where our commuter trains have their biggest runs from 5.1 miles to 12 miles to 17 miles and 20 miles and getting up eventually to that volume within our commuting area over here, and that is 33 miles.

Now, in spite of these short runs we started using our most expensive equipment which has to go a lot of miles to be economical. You might ask, how can we get mileage when the equipment only goes out five or twelve miles and then comes back? The problem is now new. Before we ever really heard of Diesel locomotives we had two studies made of the possibility of improving that service and cutting down our cost by using modern steam power instead of really old locomotives (and they were older than I was at that time and I am not kidding when I say that some of them were pretty nearly as old as I am today).

You just could not do it economically. Then somebody got the bright idea that the reason you could not do it was that the fuel cost was too high and that if you burned oil you could do it. So we had another study made. Each of these studies fills up a volume about that thick (indicating two inches). They drive everybody crazy and eventually they get filed in the archives to gather dust.

We were the country's first big user of Ed's "doodle bug", the gas electric cars. We astounded the world back in 1925 by buying ten of them all at once. So we made another study. The Erie railroad people had put gas electric cars into what they called the suburban service out of Jersey City. We made a study to see what we could do with the gas electric cars.

Just about the time that that study got off two of the manufacturers of the gas electric cars came running in and their salesmen told us to "hold the phone", the gas electric is a dead issue; there is something new coming on the market called the Diesel electric and you will be crazy to spend money on gas electric engines. We made the study because we had to do something. They also said, you don't want to buy any gas engines today because they are going to be obsolete very shortly. Thank goodness for some of the salesmen because they were right in their prediction. This was about 1931 or '32. The Diesel was being born at that time in the minds of those imaginative railroaders who could see something that their fathers could not see. Then came the Diesel electric. We went in for main line Diesel electric locomotives. We Dieselized our railroad on that basis, leaving this poor old suburban commuter business still being

hauled by a few Diesels and a bunch of steam locomotives, when in 1952 the Budds came along. When they did, we did not even give them a second thought for the commuter service, because again they had to be used somewhere in order to make a lot of miles. So we put them into the main line service.

After we got our main line service all operated with Diesels, or Budds we took another look at the suburban business. Incidentally, we had a couple of bright young roosters on our railroad and who were not too much influenced by what our fathers did or how many studies they had made. An old codger like me did not count. They said, "Let us try the Budds in the suburban service". Frankly, Gentlemen, I did not think it would work; however there were some features that suggested that we use the Budds in place of steam or Diesel in our suburban service. The way we went about it was not to take a train or a branch or a local and see what could be done with Budds on that. Had we done that, we would still be chugging along and losing far more money than we are losing now, which is only a million dollars a month. That is all we lose in the suburban business now and it is why Mr. McGinnis said we are just doomed in handling that sort of business. However, had we not gone in for the Budds, we would be losing two million or more a month and we would be just that much worse off.

We studied it by taking the Budd cars and setting up the timetable or the train sheet, whichever way you want to do it, and running it out some place and bringing it back, looking to see where it can go without waiting more than ten minutes or so to go some place else. We set up a whole systemwide pool of Budd cars out of Boston. The way the first part of it looked was about like this, (Figure 2) in which you took the consist that you thought you needed and set up the consist over in the left hand column. Then you started out with the top group with what trains you could go out with and come back with and what would be the next train out with the minimum lay-over, and so forth. We run them back and forth.

We have a 24 track terminal separated from the yard by the Charles River, over which we have a four span draw, and that presents a real problem to get trains in and out. The result under steam operation was that you just had to make the best of it and wait your time until free tracks were available. Our turn around for the locomotives and the cars took a terrific amount of time, when the suburban trains were supposed to be in operation. These turn arounds are unnecessary with Budds because all you have to do with a Budd consist is get the engine man to walk from one end of the train to the other, set up his controls, put his seat in place and he is ready to go. That means we send Budd cars out within ten minutes of the time that they come in. This is pretty tight, I will admit, but it can be done and it is being done.

Now, instead of two hours to get locomotives out to the engine house and turned around and backed out to the yard, to pick up another bunch of cars and back them into the station and get loaded we are down to ten or fifteen or twenty minutes and have time to spare most of the day.

This modified first in-first out scheme was then carried right down the line until we ran out of trains. Eventually, of course, you run into such things as the fact

that at eight o'clock in the morning, in some places, everybody wants to go to work at the same time. Those few trains are still being handled with the Diesel power and conventional equipment.

How did we come out financially? This study indicated an expenditure for new equipment of about \$9-1/2 million for Budds and a million and a half for additional Diesel locomotives to cover those trains that I just described and get rid of all of the steam locomotives. If we spent that \$11 million, we could retire 75 steam locomotives and 235 passenger cars. We could save money in locomotive repairs and save money in fuel, engine house expenses, yard moves and we eliminated a lot of switchers at the station itself in getting the conventional cars back out of the station and out of the way. We saved the crew's wages and we saved car maintenance on 235 old conventional cars which were pretty much falling apart. Some of you, I know, have operated cars under those conditions and you know what car maintenance can be.

We felt that we could not afford to spend \$6,000 to \$12,000 to give them a real overhaul and get rid of the high maintenance cost. Neither could we live with the haywire maintenance that we had to do every day. We also could eliminate a lot of outlying terminals and the expense that goes with them. We would get some savings, the one time savings in the retiring of a lot of steam facilities and the scrap value of the locomotives that we would no longer need and the cars that we were going to scrap. We would also get the one time saving of the heavy repairs that we were bound to make if we wanted to keep the old cars and old locomotives going.

We estimated that the one time saving in the heavy car repairs would be \$2-1/2 million. Furthermore, while they would not come in one fell swoop we were bound to have the heavy repairs on steam locomotives if we continued to operate them. I can't quote what that cost would be. I could not find that information when I started to work up this paper, but it was worse than the heavy repairs to the cars. We made a parallel study or we had parallel studies made as to whether retaining the conventional cars and using Diesel motor cars might not be a better bet than Budds. It turned out that the Budds were the best proposition, but don't leave any stones unturned. Don't get all agog about something prematurely because maybe under the next stone is something better. We looked under a good number of stones and found nothing there.

Following this, we made a study as to how many cars were needed and what we could save. We eventually worked up a rather voluminous report that indicated that for an investment of a little over eleven million dollars, we would save about a million, one hundred thousand dollars a year. That included the fixed charges. I will repeat that. That included the fixed charges, depreciation, paying for the cars and interest on the time payment plan and all that sort of business. That is a pretty good net, but when we submitted it to top management they said, "Yes, but".

They figured a bunch of mechanics can always figure out something that will make their back yard look pretty, but how much can we depend upon these figures? So we turned the whole kit and kaboodle over to the accounting department. They took an entirely different way of going about it. The accounting department checked all of our figures for costs against their own and of course they did not always gibe. You can guess which ones they used when they did not gibe. They took the last year's ICC report and

they took every account in that report that would be affected in any way, shape or manner by the changeover from steam, Diesel and conventional cars to the Budd fleet and figured what the net results would have been last year if we had had the Budds.

When I say every account I mean that included the interest, taxes, retirement and everything else. They came up with a volume like this, which you will recognize if I just show you a page or two. That particular page starts out with transportation account 371, 372, 373, 374, 375, 376, 377 and 378, and right on down the line. When they got all done they showed 17% gross return on the investment.

The Board of Directors therefore had their choice as to whether they wanted to believe the mechanics or the accountants because both figures came out approximately the same. They believed both of us and we were in business with Budds.

Unfortunately, I cannot brag quite as much as Ed did about what has been done. In 1952, before we embarked on any Budd program, we handled a total of nearly six million passenger train miles, of which 5-1/2 were with locomotives hauling trains and a half million with self propelled equipment. We then had a little self propelled equipment, including a few of the gas electric car equipment type.

This is strictly passenger service. The boys this morning said let us not talk about passenger service, but freight service. However, with Budds we have to talk passenger service. In 1952 we had 75 steam locomotives, 22 passenger Diesels, 47 general purpose Diesels that we used both ways and 727 passenger coach cars, or passenger carrying cars, plus our 13 self propelled cars. That year our total locomotive and car maintenance account ran \$6-1/2 million.

In our annual reports last year we handled 5.8 million passenger train miles, of which 3-1/2 million were with locomotives and 2-1/4 without locomotives.

We have no steam power; we have one less passenger Diesel; we have increased the number of general purpose Diesels to 72; we have cut the number of passenger coaches right in half (it is down to 316), and we have 105 self propelled cars doing practically the same passenger train miles business that we did in 1952. The fuel has gone up and wages have gone up. My salary went up a little bit and last year we spent \$5-1/2 million for the maintenance of our locomotives and cars, including the self propelled cars. So while we have not made a nickel with our Budd cars, we have run the railroad for \$2 million less than we did back in 1952.

Now all of this business is old stuff to some of you who read the magazines, because in much more flowery language it was written up in Modern Railroads in 1956, and Railway Progress in 1955. Those editorial boys can flower it up a lot over what I did.

However, I tried to give you the meat of the nut, how we have to do it, how well it works and there are a lot of things that I did not tell you.

I would like to quote one more thing. To indicate how you can do this in suburban or community service with Budd cars we have this group of assignments that get changed every once in a while and each one of the group assignments is on this chart. (Figure 3) Those group assignments run from Budd coverage of two trains a day to assign-

ments of twelve or more different trains a day.

In line with what Mr. McGinnis said this morning about fresh thinking, why wasn't it done a long time ago, because we are doing with Budd cars today exactly what subways and trolley car companies are doing. They run them back and forth wherever the business needs them. They don't bother to haul them around with locomotives and put them out into the yard and say we cannot use those right away. We have to get some new ones because somebody has to sweep those out and that sort of business.

There were a lot of problems. We saved a lot of money in outside facilities. Then we found out we have a little bottleneck of a terminal in Boston, surrounded by some very high priced property which is right under the shadow of the State House of the Commonwealth of Massachusetts. If that was not a madhouse when you got 103 Budd cars in there dashing back and forth all day long, then I don't know what you could call a madhouse. However, we are spending some of the money we saved to put the facilities in proper shape. I don't intend to dwell on that because on Thursday morning we have a paper on the locomotive utilization which is another angle.

I looked with a great deal of tolerance at the results obtained with Budds on the B&M and my predecessors' results and wondered why they did not do something like this but after all is said and done none of you fellows who are accountants ever solved your problems with an electronic computer until somebody got you an electric computer. We did not solve our problem with Budd cars until Budd gave us the model.

* * *