

# YELLOW JACKET® ManTooth 67007 Cost Study

by Barry Hoyland

Whenever I consider purchasing any new tool, other than hand tools, I analyze the ROI (Return on Investment) to see if it will be worthwhile, what the cost of performing the service should be, and how long it will take to pay for the tool. A true ROI will not only evaluate the cost of the tool, but the impact, either negatively or positively, on other revenue sources and/or personnel in the shop. For example, if you were considering a large investment on an alignment machine, you would need to consider the revenue gains from performing alignments along with the potential revenue losses due to the loss of a bay, and possibly the loss of income from a technician now performing alignments rather than doing the work they previously did.



I wanted to evaluate the cost of the YELLOW JACKET ManTooth 67007 PTV. The PTV (Pressure Temperature Vacuum) consists of a set of Bluetooth temperature/pressure sensors that connect to the vehicle's A/C system where you are then able to connect to your phone, or tablet, to remotely read temperatures and pressures throughout the A/C system.

First off, some of the reasons to consider a purchase of this tool include:

- The ability to quickly read pressures and temperatures without connecting an RRR machine to the vehicle.
- The ability to print records to show your customer or store for future reference.
- The app has a built-in algorithm that calculates superheat and subcooling to determine if the correct charge is present in the vehicle.

I'll explain why the items above are so important in this ROI study. As a technician, you, like me, probably already have gauges, RRR machines, and temp probes that can perform these functions. But you must consider the unique aspects of this tool, which include the capability of driving the vehicle with a set of gauges and temperature probes connected. Since the tool and app records minimum, average, and high pressures and temperatures on both the high and low-pressure sides of the system, you will be able to test the system on the road with one technician, rather than two.

The other major benefit of this tool is the algorithm calculator for superheat/subcooling. With the extremely small amounts of refrigerants used on many of today's vehicles, it is very easy to over- or under-charge the system and not be able to determine if that has occurred when using just an RRR machine. Consider most vehicle HVAC systems will not operate properly in all conditions (ambient air, engine load, sun load, etc.) if they are over- or under-charged by as little as 5 percent. On some vehicles

just a few years back using a refrigerant capacity of 40 oz., a 5 percent undercharge would be 2 oz, while a late model vehicle might only use a full charge of 19 oz., meaning a 5 percent undercharge is less than 1 oz.

One of the best ways to ensure a correct charge is to perform temperature/pressure calculations to make sure the superheat or subcooling values are consistent with a correct refrigerant charge. This tool with an app that performs these calculations for you is easier, quicker, and more accurate than using the charts and graphs you would typically use.

After you understand the benefits of the tool, you should evaluate how many vehicles you could use this tool on. In the case of the ManTooth, it could be used on every vehicle you service the HVAC system on. Additionally, the added benefit of a quick connection makes it very useful as a quick check and point of sale reference for selling HVAC services.

I think the best feature of the tool is having the ability to operate the vehicle under varying driving conditions while monitoring temperatures and pressures in the A/C system. This can be very helpful in determining the cause of intermittent problems. During our test of the tool, we brought in a vehicle that has had a history of intermittent issues where the A/C would not cool the vehicle down. We had serviced the vehicle a few times, but had not corrected the issue, mainly due to the intermittent nature of the problem. With the ManTooth connected, we were able to see a spike in pressures while driving, which led us to find a loose section of an air dam under the front of the car that would block airflow across the condenser.

Now for an analysis of the ROI, the suggested retail price of the tool is just under \$800.00. If you use a labor rate of \$100.00 per hour and you pay your technician \$30.00 per hour, it would take 11.5 billable hours of tool use to break even. Since you are probably already using tools that can perform the same task as the ManTooth, using the 11.5 billable hour calculation will need to be determined by how much time the tool will actually save you. We determined that in almost every case we used it, this tool saved us around 15 minutes on every A/C service. In addition to the time saved, we were assured the refrigerant charge was correct, therefore minimizing the chances of a comeback.

If you were to use it on every A/C job that came into the shop, your ROI would be a break even at 46 vehicles (11.5 x 15 minutes). The break even at 46 vehicles does not account for the additional repairs your technician could perform with the extra 15 minutes, nor the cost of extra time spent on problem vehicles which could be diagnosed with this tool.

In my opinion, if you are performing HVAC services, the YELLOW JACKET ManTooth is an indispensable tool that will pay for itself in no time.

