NFI Parts™ has crystallized its approach and role in increasing the safety of bus and coach transportation. After a thorough review of CDC guidance, as well input from American Public Transportation Association, Canadian Urban Transit Association, American Bus Association, and United Motorcoach Association webinars and information, we are pleased to share our approach to improving the safety of bus and coach transportation.

As we studied the guidance of health experts, we created four principles of transportation safety: Distancing, Disinfecting, Air Quality and PPE (Personal Protective Equipment). As noted in several webinars and guides, while masks and hand sanitizer get a lot of attention, they are really the last line of defense. Distancing, disinfecting and air quality should be the primary strategies for safety and investment. In the following pages you will find additional information on these four strategies. We at NFI Parts™ know that there are many options on the market to help you execute on the attached strategies and we encourage you to pursue the ones that best fit your business.

Distancing

The SARS-CoV-2 virus (which causes COVID-19) primarily spreads through airborne particulates traveling to others and infecting them through droplets. Sneezing and coughing cause virus particles to become airborne. Many transit organizations and private operators have taken steps to protect their drivers from droplets that may contain viruses. While rear door boarding has been implemented in many cities, as agencies begin to look at long-term service plans and resume colleting fares, it remains important to minimize the proximity of operators to the hundreds or thousands of passengers they transport each day.

'social distancing' is the primary way to combat this mode of virus transmission

Driver barriers have become more popular over that last several years primarily due to driver safety concerns, but also have become a primary tool to create 'distance' for operators. Decision makers at transit agencies and private operators are considering many options including comprehensive driver barriers primarily designed to prevent an attack on the driver which will also serve as a droplet barrier. Others are looking at lower cost droplet barriers that protect drivers and meet legal requirements while driving. It is important to consider useful life, material attributes, and an operator's goals (droplet barrier only, or droplet + physical) when selecting a barrier. The ANSI/SAE Z26.1 standard governs the type of glass or polycarbonate that can be used in these barriers that are in the operator's line of sight. This guideline states that if a material is in the drivers' line of sight during operation, it must be AS2 or better. This

specialty polycarbonate typically has a four to six-month lead time. Decision makers should be aware that 'do it-yourself' barriers made with off the shelf polycarbonate do not meet this standard and should remain out of the driver's line of sight during bus operation.

The well-known six feet or two-meter guidance termed 'social distancing' is the primary way to combat this mode of virus transmission. Typical transit bus and motor coach configurations were not designed around these guidelines. Various methods can be employed to 'disable' seats in a way to preserve these distances, if required by a specific customer or local ordinance. In most cases, passenger capacity on vehicles will be reduced by over 50% in order to adhere to the strict six-foot guidelines. As passenger count increases, more vehicles may be needed to move the same number of people, particularly in areas and on routes where demand for group transportation remains high. Products such as operators' barriers, retractable belt barriers, seat signage, and other items can be used to help create distancing within buses and motor coaches.

Disinfecting

Increasing cleaning and disinfecting efforts have been a focus across the transportation industry. Daily protocols everywhere are being enhanced and executed more frequently and more is being done while vehicles are being operated. One key to proper disinfecting is to ensure that the surface is clean before disinfectant is applied. The CDC recommends three methods to disinfect against the SARS-CoV-2 virus (which leads to the COVID-19 disease); use an EPA approved disinfectant, use a diluted bleach solution, or use an alcohol-based solution of at least 70% alcohol. Bleach and ammonia-based disinfectants are not recommended for use in bus and coach applications as they can cause damage to interior surfaces. Disinfecting solutions can be applied to interiors in a variety of ways - for example, hand wiping, wet mopping or low-pressure fogging systems. Air and surface purification units are also available; these offer disinfecting technology which will sanitize air and surfaces, and do not require additional labor or vehicle downtime for daily or mid-day disinfecting.

always make sure to choose options which are safe for your employees and customers

Air and surface purification units can be run while vehicles are in service; it is important to select a product which is safe to have operating while drivers and riders are on board and which does not leave behind potentially harmful residue to maximize your investment and allow for continuous disinfecting throughout service hours.

Fogging systems are not new but are increasing in popularity because of their coverage and ease of use. They offer the opportunity to disinfect air as well as hard surfaces and can either be hand-held or stationary units. When considering a fogging system, it is important to select an appropriate solution that will fight against germs and be safe for the interior of the vehicles in your fleet.

The regular use of CDC approved disinfectant products can help to reduce viruses and bacteria on the surface of vehicles and create a safer environment

for passengers. While decreasing the risk COVID-19 spread, always make sure to choose options which are safe for your employees and customers.

Remember to always clean surfaces before disinfecting.

Air Quality

Mounting evidence suggests that the primary mode of SARS-CoV-2 virus (which causes COVID-19) transmission is through droplets in the air. Virus particles transfer to others through coughing, sneezing, talking and breathing. Decision makers should consider options that will remove virus particles from the air inside the cabin to reduce the likelihood of virus transmission. Fresh air should be able to circulate, and like physical surfaces air onboard a vehicle can be cleaned and disinfected to improve passenger safety and comfort. HVAC systems should run as much as possible drawing fresh air into the vehicle. Efforts should be made to draw additional fresh air into the vehicle to improve passenger safety and comfort.

consider options that will remove virus particles from the air inside the cabin

Air can also be sanitized while it is being circulated within the vehicle. While vehicles may never reach 'clean room' status, they can be made safer through air sanitization and filtration.

A regular maintenance item, it is good practice to change out your air filters every three to six months. This is a good time to look at the MERV (Minimum Efficiency Reporting Value) rating on the filters you are using in your fleet, and choose a higher rated option going forward. Higher MERV rated filters will capture more particles in the air but also can cause lower airflow through the HVAC system. Consult your OEM for filtration options and recommendations. Filters are also now available with antimicrobial coatings that eliminate 99.95% of virus particles in the air. It is important to also make sure you are choosing a filter that will be compatible with your vehicles; simply choosing a higher MERV rated filter will not provide better air quality if it does not fit the application. High MERV rated filters, antimicrobial filters and frequent filter changing should be part of any air quality strategy.

UVC lights are a relatively low-cost, chemical-free and convenient way to sanitize the air being circulated in the bus. These run in the background alongside the HVAC system when it is turned on; reducing viruses, bacteria, and mold in the air as the vehicle runs. UVC light can pose health risks if there is direct exposure to people so employing these lights in HVAC ductwork allows them to sanitize air without compromising operator or passenger safety. UVC has been used to sanitize hospitals, operating rooms, doctors' offices, medical equipment, residential spaces, etc. for many years.

Ventilated roof hatches can be used to keep more air moving within the vehicle. An additional benefit is that these fans will help cool the bus more quickly removing the hot air from the ceiling (similar to an attic fan in a home). These are easily retrofitted into most transit buses and motor coaches and are a quick, cost effective method to improving air quality within a vehicle.

Air purification units also improve air quality while they disinfect the air. These systems are effective against viruses, bacteria, mold, Fungus, VOCs, mildew and odors, all without leaving behind harmful residue.

PPE

When the guidelines of social distancing cannot be followed it is important for individuals to take proper precautions. Many transit authorities are requiring riders to wear some type of mask covering the nose and mouth. We are also seeing states and provinces requiring masks to be worn the workplace. Operators must choose the PPE standards for their drivers and passengers and think about how those rules will be followed. This is a difficult area to define; transportation services can show passengers what is expected of them by having drivers wear the same PPE. Enforcing mandatory use of masks can be difficult, and driver safety should always be a factor when deciding if any passenger action is to be mandatory in order to ride.

Placing hand sanitizer for everyone on board to use at the entrances of vehicles is another way to encourage passengers to keep hands as clean as possible. Secured holders are available that will allow the sanitizer to be used, without risk of the dispenser becoming lost.

it is important to ensure all vehicles have sufficient supplies to refill throughout the day

Hand sanitizer, masks, etc. available onboard may make passengers feel more comfortable. While it is becoming more common practice for people to have these items when they leave home, providing the option for those exiting and entering vehicles is a good way to show their well-being is taken under consideration by operators. Touchless dispensers, and individually wrapped masks limit exposure to contact. These items have become high in demand in all areas, so it is important to ensure all vehicles have sufficient supplies to refill throughout the day.

Conclusion

The principles; Distancing, Disinfecting, Air Quality, and PPE can help improve the safety onboard buses and are critical steps toward restoring the consumer confidence we need to restart our industry which will serve to help restart our society and the economy. There is no one solution to reducing the spread of COVID-19; we all must continue to implement strategies which work in conjunction with each other. NFI Parts™ is extremely proud of the service that our industry provides and is eager to perform its role in implementing these strategies. We know there are many companies working hard to do the same and offer some good products as well. We encourage you to explore all of your options from across the supply base and make the decisions that are right for your business when you are ready.