



City of Santa Monica's
Big Blue Bus
-Maintenance Division

Philosophy

BBB is dedicated to contributing to the region's mobility, economic vitality, sustainability, and enhanced quality of life through the delivery of safe, reliable, economical, accessible and customer-focused mass transportation services.

Service area

The Big Blue Bus (BBB) provides transit services within 51-square miles encompassing the City of Santa Monica and surrounding communities of West Los Angeles. BBB operates 20 fixed routes and express service's.

Assets

The City of Santa Monica big blue bus operates 195 buses, 4 para-transit vans and 22 support vehicles under a single facility.

- 157 CNG's (Gillig's, NABI's, New Flyer's, El Dorado's)
- 38 LNG's (New Flyer's)
- 4 paratransit CNG's (Mobility Ventures)
- 22 support vehicles (Mix Fleet)

Retrieving Mileage

- BBB retains mileage via fuel focus upon cleaning and fueling assets.
- A vehicle information box is equipped in all buses which then extracts mileage via CAN messages J1939/J1708.
- In addition to mileage, Fuel focus reports fuel, coolant, engine and transmission oil consumption. Doing so allows us to trend deficiencies based on fluid consumption by day.

Scheduling PM's

- PM inspections are performed every 6k miles plus or minus 10%. (5400-6600miles).
- Transit Mechanic Supervisor's soft hold PMI's within 5400-6000 miles and reduce excessive mile accumulation (trippers).
- when a bus reaches 6200-6400 miles the bus is placed on hard hold.
 - **Buses on hard hold are not permitted to leave the yard under any circumstance.*

PMI Sequence

The Preventative maintenance sequence is as follows:

PMA (6K)

PMA (12K)

PMB (18K)

PMA (24K)

PMA (30K)

PMC (36K)

PMD's and PME's are on a separate schedule:

PMD's are for 60 foot buses (42k).

PME's are for 40 foot buses (72K).

PMF's are for all buses (96K)

This cycle repeats for the life of the vehicle

PMI Key Service Elements (40')

PM Type	Key service elements
PMA (6,000 miles)	Engine oil and filter, Oil Analysis
PMB (18,000 miles)	Engine oil and Filter, Air filter, Engine Overhead Adjustment, Spark Plugs, Near Zero Filter, Fuel Filters, Oil Analysis.
PMC (36,000 miles)	Engine oil and Filter, Engine Overhead Adjustment, Spark Plugs and Coils, Coolant filter Only, Oil Analysis.
PME (72,000 miles)	Engine Oil and Filter, Transmission Service, Power steering Service, Oil Analysis.
PMF (96,000 miles)	Engine Oil and Filter, Air Valve Replacement, Differential Oil service, Oil Analysis.

PMI Key Service Elements (60')

PM Type	Key service elements
PMA (6,000 miles)	Engine oil and filter, Oil Analysis
PMB (18,000 miles)	Engine oil and Filter, Air filter, Engine Overhead Adjustment, Spark Plugs, Near Zero Filter, Fuel Filters, Oil Analysis.
PMC (36,000 miles)	Engine oil and Filter, Engine Overhead Adjustment, Spark Plugs and Coils, Coolant filter Only, Air Dryer service, Center axle Bearing Repack, Oil Analysis.
PMD (42,000 miles)	Engine Oil and Filter, Transmission Service, Power steering Service, Oil Analysis, Differential Oil Service.
PMF (96,000 miles)	Engine Oil and Filter, Air Valve Replacement, Oil Analysis.

Establishing the PM program

- During the pre-production meetings for an new bus build:
 - New or different systems and components are documented
 - PM tasks are updated based on OEM recommendation for the new component or systems
 - PM intervals are updated for new components or systems per OEM recommendations
 - Maintenance manual specifications and procedures are included in PM checklists

Ensuring PM Effectiveness

- To verify the effectiveness of the PM program deficiencies are catalogued by frequency and severity
- Deficiencies that occur often or impact bus operations may be added to the PM tasks for that bus series
 - A committee meets periodically to review deficiencies and recommend PM program changes

PM Checklist Example

PREVENTATIVE MAINTENANCE INSPECTIONS
 TYPE OF INSPECTION
 2013 GILLIG PMF
 96,000 Miles

REV. BY
 8/25/2018 J.D. CAMPO

TASK	MECHANIC	PASS	FAIL
(910-009) INSPECT HUBODOMETER Procedure: NO LOOSE PARTS - NO DAMAGE-GOOD CLARITY-			
(910-064) INSPECT EVAPORATOR COMPARTMENT AND DOOR Procedure: DOOR OPENS - LATCHES PROPERLY-NO LOOSE PARTS- NO DAMAGE TO WIRING OR ELECTRICAL COMPONENTS- REMOVE FILTER FOR CLEANING			
(910-072) STEAM CLN-ENG COMPART A CCESS DOOR INTERIOR UNDERCARRIAGE Procedure: AVOID SPRAYING ALTERNATOR DIRECTLY WITH WATER - ENGINE COMPARTMENT ACCESS DOOR INTERIORS AND UNDERCARRIAGE CLEAN FILL WASHER BOTTLE			
(910-193) INSPECT AND OPERATE RADIATOR FANS Procedure: IN REAR RUN WITH RADIATOR DOOR CLOSED - ACTIVATE FAN SWITCH TO TEST FANS IN REVERSE.			
(910-067) INSPECT REAR SEAT AND ENGINE COMPARTMENT ACCESS PANELS Procedure: HINGE SECURELY MOUNTED AND IN GOOD CONDITION- LOCKING PROP FUNCTIONAL - REMOVE ALL FASTENERS BOLTS - CHECK ACCESS COVER AND ENGINE AREA DO NOT SECURE COVER			
(910-016) INSPECT AND TEST MASTER CONTROL SWITCH Procedure: OPERATES AS INTENDED - HEAD LIGHTS OPERATIONAL IN NIGHT RUN- DRL MODULE OPERATIONAL- NO LOOSE PARTS- DIAL ALIGNS PROPERLY-			
(910-017) TEST AND INSPECT STARTER BUTTON AND SHIFT SELECTOR CHECK DRIVER SEAT SWITCH Procedure: NO BINDING OR LOOSE PARTS - RUBBER BOOT ON STARTER IF EQUIPPED-			
(910-031) TEST AND INSPECT ALL DESTINATION SIGNS Procedure: PRESS DEST A AND THEN PRESS NUMBER 2 THEN PRESS ENTER BUTTON FOR TEST - SIGNS ARE LEGIBLE AND FULLY ILLUMINATED - OPEN FRONT PANEL AND CHECK FOR SECURE MOUNTING			

Reviewing Process

- Upon Completion, supervisors review paper work, ensure all dates are correct and record life mileage at the end of the inspection
- Quality Assurance Coordinator reviews hard copies, validates with the asset management system
- Incomplete inspections are return to Mechanics to address accordingly
- Supervisors review deficiencies, approve or reject service request's via asset management system

Quality Control

Transit Maintenance Quality Assurance Reviews
Deficiencies and Creates Quality Control Inspections.

Quality Control Inspections vary and change every two weeks.

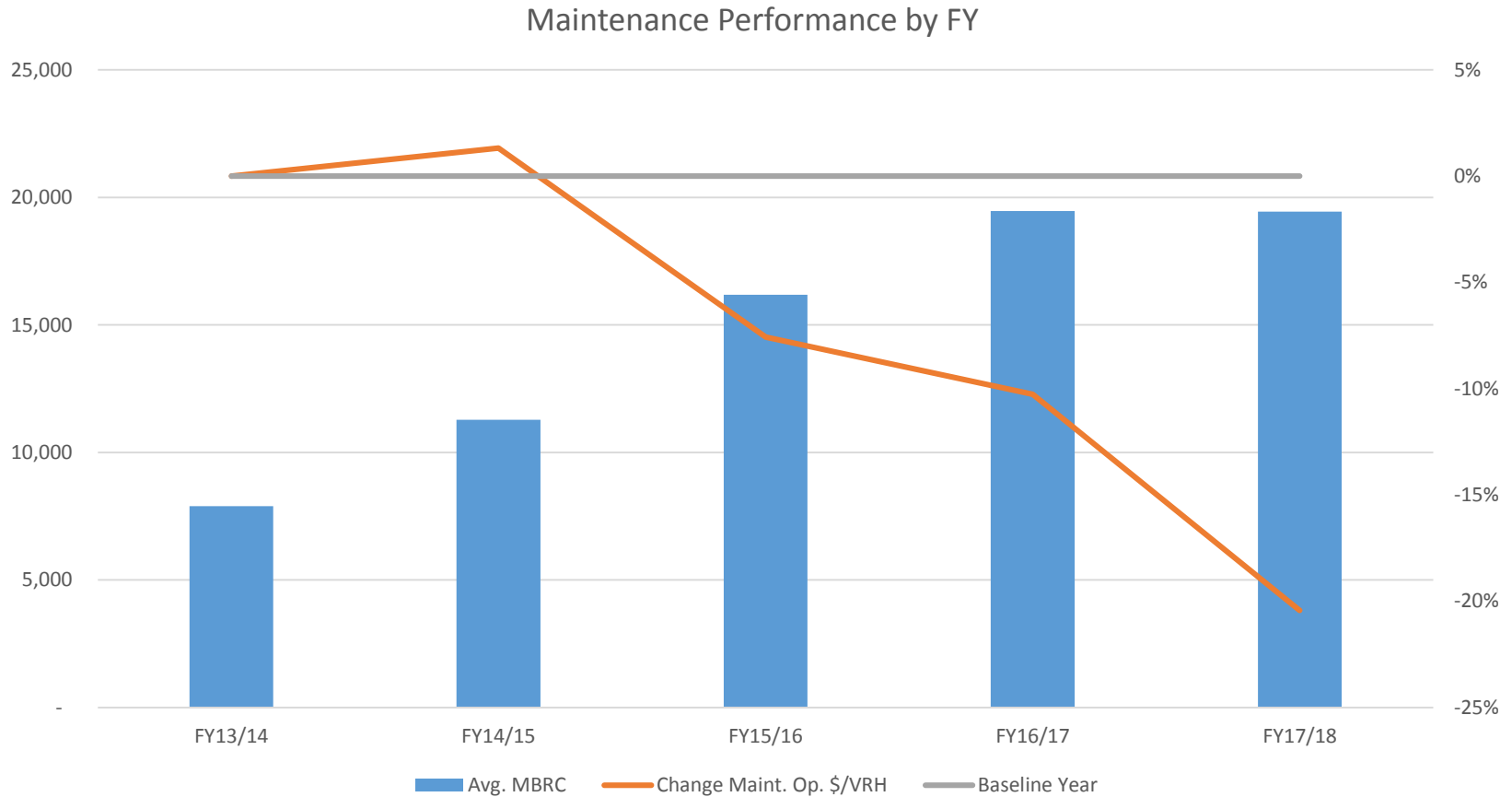
Supervisors must complete one inspection per week that includes the following:

- Six Pre determine Checks identified by QA Coordinator
- Inspect two major repairs to ensure it was performed effectively.
- Ensure all Parts were charged out to Work order

BBB Best Practices

- Replace Components with New parts only.
 - OEM spark plugs/coils
 - Air brake valve components
 - New tires (No recaps)
 - Thoroughly Inspect brake and Articulating joint components and proactively replace wear items.
 - Use Oils approved by the component Manufacturer's.
- Follow Recommended Maintenance procedures for all task's.
- Continuous Mechanic Training and QC.
- Supervisors to review all Completed work orders.

Show me the Numbers!!



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