

TSMO MDOT Fleet Services Winter Maintenance Truck Buildup



October 2023



PRESENTATION OBJECTIVES

Introduction: TSMO Fleet Services
Winter Maintenance Truck (WMT) Buildup
Questions?




Introduction



- TSMO Fleet Services
- July 2021 Fleet & Facilities Units join TSMO through organizational realignment
- 108 Different Groups of Vehicles/Equipment

Leased	• Cars, Minivans, SUV, Trucks, Full Size Vans
Light Fleet Owned	• Cars, Minivans, SUV, Trucks (Under 1 Ton), Full Size Vans
Medium Fleet	• Trucks 10,001 – 26,000 GVW • F550
Heavy Fleet	• Trucks Greater Than 26,001 GVW • International 4900 with Aerial Tower/Dump/Etc...
WMT	• Winter Maintenance Trucks
Equipment	• Tractor, ATV, Aerial Tower, Arrow Board, Message Board, Traffic Signals, Traffic Radar, Chipper, Compressor, Crane, Outboard Engine, Excavator, Trailers, Generators, Loaders, Mowers, Etc...

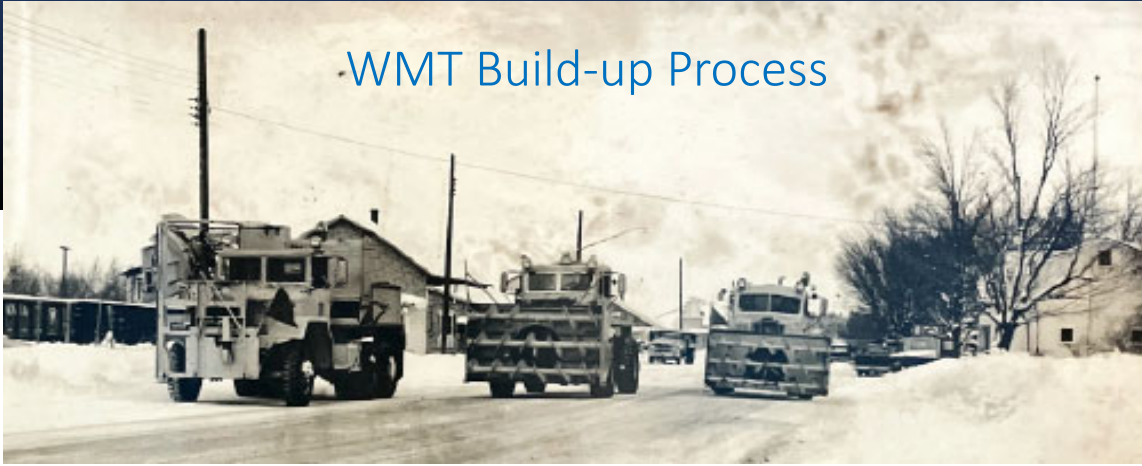
WMT Buildup



- 10 Techs
- Department Tech
- Laborer
- About 500-600 Labor Hours per Truck
- Major Components
 - Cab and Chassis
 - Body
 - Blades
 - Wings
 - Plows
 - Spreaders
 - Hydraulics
 - Etc...
- TSMO Fleet builds trucks "road ready"
- Region up-fit should be minimal

Request Year	International	Western Star	Total
1999	13		13
2000	22		22
2001	29		29
2002	32		32
2003	22		22
2004	30		30
2005	34		34
2006	22		22
2007	24		24
2008	9		9
2009	39		39
2010	0		0
2011	20		20
2012	0		0
2013	16		16
2014	22		22
2015	19		19
2016	19		19
2017	24		24
2018	12	19	31
2019	11	19	30
2020	11	21	32
2021	18	28	46
2022	7	27	34
2023	12	31	43

WMT Build-up Process



1. Preparation Phase
2. Tarp/Lights and Wiring
3. Electric 1 Activity
4. Weld 1 Activity
5. Paint 1 Activity
6. Hydraulic 1 Activity
7. Weld 2 Activity

8. Paint 2 Activity
9. Hydraulic 2 Activity
10. Electric 2 Activity
11. Miscellaneous Items
12. Paint Final
13. Final Inspection
14. Warranty/Fix

Preparation Phase



Incoming and Inspection.



Fabrication of Details.

Tarp/Lights and Wiring

Install tarps on all Dump, DVS, and Swap Loader bodies.
 Install Stop, Tail, Turn (STT) and warning lights on all bodies.
 Install and wire dry boxes on all bodies.
 Install pre-wet on all bodies as required.



DVS Body Before Tarp and Light Install



Tarp and Front Strobe

Pre-Wet Tanks and Mounting Brackets

Pre-Wet Controller

Rear Lights

DVS Body with Pre-Wet After Tarp and Light Install

Electric 1 Cab and Rear Chassis.

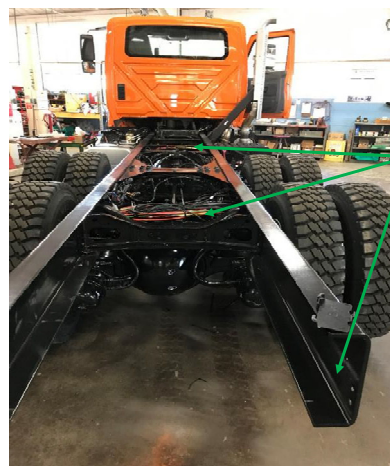
Pull rough wire and air lines into truck frame.
 Install Roadwatch, front plow lights, and exhaust elbow.
 Install components into console (on bench).
 Install salt controller in cab.
 Install rough wiring into cab.
 Mount console into cab.



Joystick

Console

Wiring Prep



Airlines and Electrical Wiring.

Weld 1 Chassis.

- Install Wing Post(s).
- Install scraper.
- Install Husting hitch.
- Install rear hitch plate.
- Install fuel/hydraulic tank.
- Install hydraulic tube mounts.

Install/Weld Front Plow Jack



Install/Weld Bracing



Install Hydraulic/Fuel Tank and Valve Enclosure.

Install Wing Mount.

Install Box/Hinge Assembly.

Fabricate/Install Bulkhead Plates.

Install Hitch Plate.

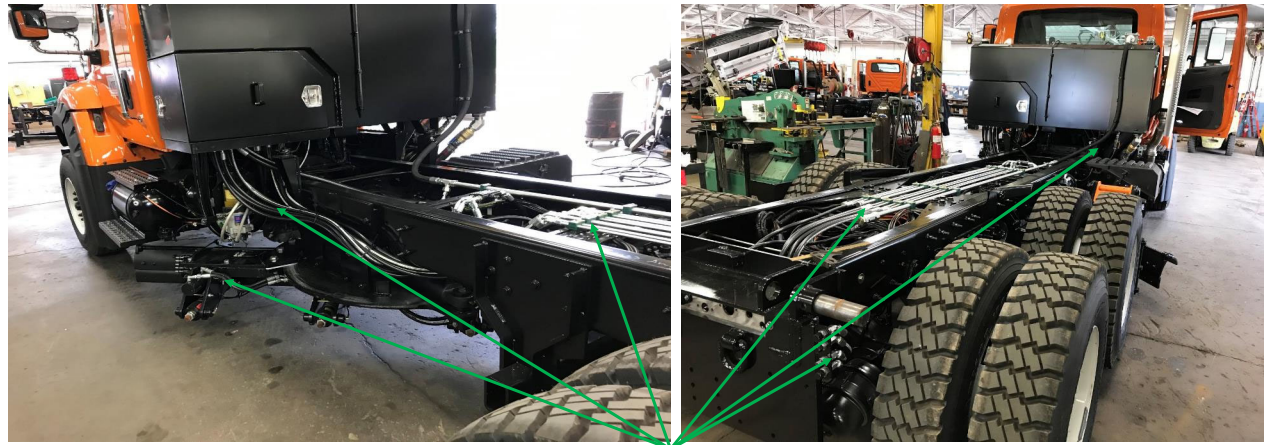
Paint 1.

Prep, prime, and paint any exposed metal on truck frame and installed components.



Hydraulic 1.

- Install stainless steel tubing.
- Install suction hose to pump.
- Install wing sequencing valve(s).
- Install and route hydraulic hoses.
- Fill and commission hydraulic system.
- Rework battery cables.
- Set preliminary pressure on all valve sections.



Install Hydraulic Hosing made in-house.

Weld 2.

- Install sub-frame for dump bodies.
- Install body – DVS or Dump.
- Install slide-in hopper in dump body.
- Install wing moldboard(s)/push arms.



Weld Body on Truck.

Install Wing(s).

Paint 2.

Prep, prime, and paint components from Weld 2 process.
Touch-up any areas of unit where paint was compromised.



Hydraulic 2.

Hose components added to truck.
Install wing(s) hydraulic lines.
Check and adjust hydraulic control valve pressures.



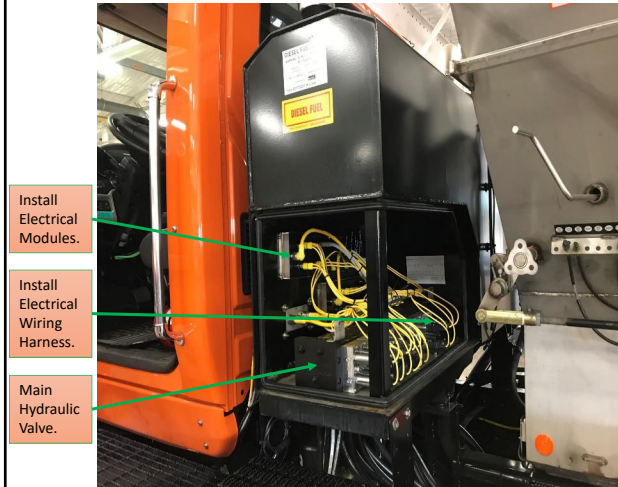
Install Hydraulic Hosing made in-house.

Front Cross Auger.

Front Spinner.

Electric 2.

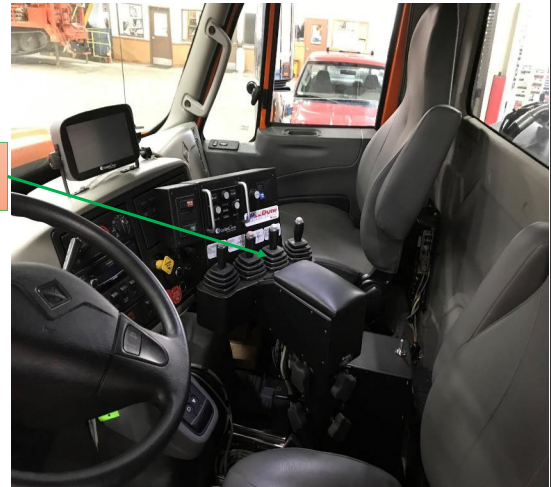
- Install wiring from truck chassis to dry boxes.
- Terminate all air lines.
- Install AVL.
- Wire all miscellaneous lights and sensors.
- Install wiring to all hydraulic valve solenoids.



Install Electrical Modules.

Install Electrical Wiring Harness.

Main Hydraulic Valve.



Install Electrical Modules.

Complete Truck – Miscellaneous.

- Install tow plow hydraulics.
- Install zero velocity spinner.
- Resolve any problems with cross-augers.
- Install Schrader valve in air tank.
- Install clearance light.
- Install stainless steel bolts in lieu of cotter pins on wing.
- Remove check ball from fuel filter inlet fitting.
- Install zip tie in remote power module output connector.
- Install and program switches and controls.
- Install and program dash warning lights.
- Grease main conveyor sensor cavity.
- Install "Wing Light Stick(s)".
- Complete final inspection as per checklist.
- Road test.



Custom Made Wing Stick.

Custom Wing Wiring.

Customized Cross Auger Mounting.

Tow Plow Connector Docking with Custom Mounting Hardware.

Cross Auger.

Left Spinner.

Buildup Innovation Examples



- **New Corrosion/Paint Process**

- **Installation of GPS/AVL**

- **Green strobe installation**

- **Tow Plows/Dual wings**

- **Back-up cameras**

- **Hook lift applications**



QUESTIONS?

