SANDY SPRING VOLUNTEER FIRE DEPARTMENT

Boat Support 740 Driver Operator Training

MCFRS ID 8-17-4156

June 2018
OBJECTIVE

• Upon the completion of the Boat Support 740 Delivery Training the driver operator candidate will be able to identify components and safely operate the apparatus and it’s associated equipment in accordance with manufactures specifications and unit design.
BEFORE OPERATING

• All Driver Operators shall read the Ram Owners manual before driving or operating the unit.

• All equipment manuals shall be read before using the equipment.
SECTION 1

Vehicle and Safety Information
SPECIFICATIONS

- 2017 Ram 5500 4x4
- 6.7 L Cummins Turbo Diesel Engine
  - Output: 325 hp @ 2,900 rpm   Torque: 750 lb. ft@ 1,600 rpm
- 6 speed Automatic Aisin AS69RC Heavy Duty Transmission
- 4.44 Axle Ratio
- Dual Alternators rated at 440 amps, electronic voltage monitoring module/ Idle up system
- PTO Prep and Upfitter Electronic Module (VSIM)
- Heavy Duty Front Suspension Group
- Transfer Case Skid Plate Shield, and other underbody protection
- Trailer Brake Controller
- Security Alarm
- GVWR: 19,000 Lbs.
- GAWR Front: 7,250 lbs.
- GAWR Rear: 13,500 lbs.
- Payload: 10,320 lbs.
- Towing Capacity: 17,170 lbs.
- GCWR: 26,000 lbs.
- Wheelbase: 173.4”
- Seats: 5
SPECIFICATIONS

• Boat Support 740 loaded with BT740B and equipment:

• GVW Total: 13,100 lbs.

• Overall Length: 24’0” (including rear hitch)

• Overall Width (Mirror to Mirror):
  – Mirrors down: 8’7.5” (103.5”)
  – Mirrors Up: 9’1” (109”)

• Overall Height: 9’0” (108”)
FLUID FILLS AND CAPACITIES

• Diesel Fuel Capacity:
  – 52.0 gallons

• DEF Capacity:
  – 9 gallons MOPAR DEF or API Certified to ISO 22241
  – Do not “Top Off” DEF Fluid. Allow DEF fluid to run low.

• Oil Type and Capacity:
  – 12 Quarts with filter 15W-40 MOPAR or meets Chrysler Materials Standard MS-10902 and the API
    CJ-4 engine oil category (Shell Rotella and Shell Rimula)

• Transmission Fluid:
  – MOPAR ASRC Automatic Transmission Fluid or equivalent

• Coolant:
  – 5.7 Gallons MOPAR Antifreeze/ Coolant Ten Year/ 150,000 Mile formula

• Power Steering Fluid:
  – MOPAR Power Steering Fluid +4 or MOPAR ATF +4 automatic transmission fluid

• Brake Fluid:
  – MOPAR DOT3 and SAE J1703. DOT 4 can be used if DOT 3 is not available.

• Front and Rear Axle Fluid:
  – Synthetic GL-5 SAE 75W-90.

• Transfer Case:
  – MOPAR BW44-44 Transfer Case Fluid

• Lubrication Points:
  – MOPAR Multi-Purpose Grease, NLGI Grade 2 E.P. or equivalent
DIESEL AND DEF FILL

DEF FLUID ONLY

DIESEL FUEL ONLY
UNDER THE HOOD

• Fluid Checks
• DOT inspection
• (2) Circuit Breakers for accessories
  – If tripped, send an email to fleet@ssvfd.com
  – This indicates that there might be a significant electrical problem
REGENERATION

• Ram vehicles do not have manual regeneration
• They do utilize DEF (Diesel Exhaust Fluid)
  – DEF does not have a long shelf life.
  – Again, Do not “Top Off” DEF Fluid. Allow DEF fluid to run low to 1/4 tank, then refill.
• Under typical operating conditions, No indications of regeneration state will be displayed.
**REGENERATION**

- If the message “Exhaust System- Regeneration Required Now” message appears on the cluster screen, the truck needs to be driven at highway speeds for a minimum of 45 minutes.
- Electronic Vehicle Information Center (EVIC) Messages:
  - Exhaust System- Regeneration Required Now
    - Displayed when DPF filter reaches 80% capacity
  - Exhaust Filter XX% Full
    - Displayed when DPF Filter is approaching full
  - Exhaust System- Regeneration in Process Exhaust Filter XX% Full
    - Indicated DPF is self cleaning. Maintain current driving condition until regeneration is completed
  - Exhaust System- Regeneration Completed
    - Message confirms DPF cleaning is completed
  - Exhaust Service Required- See Dealer Now
    - Indicates regeneration has been disabled due to a system malfunction. The Powertrain Control Module (PCM) will register a fault code and the instrument panel will display the Malfunction Indicator Light (MIL).
      - Record this fault code for the defect report. **Place vehicle Out of Service.**
  - Exhaust Filter Full- Power Reduced See Dealer
    - Power will be reduced to protect engine. **Place vehicle OOS.**
WATER IN FUEL MESSAGE

• If the “Water In Fuel” indicator comes on:
  – DO NOT START THE ENGINE
  – PLACE UNIT OUT OF SERVICE
TIRE INFORMATION & INFLATION

• Front Tires:
  – 225/70R19.5G All Position FT/RR Traction
  – Pressure: 80 PSI COLD

• Rear Tires:
  – 225/70R19.5G All Position FT/RR Traction
  – Pressure: 70 PSI COLD
SECTION 2

Cab, Dash, and Console Controls
STARTING PROCEDURE

1. Place Key in Ignition
2. Turn to on
3. Wait until glow plug light turns off
4. Start Engine
SHUT DOWN PROCEDURE

• Let the engine run at idle for at least two minutes before shutting it down, to allow the turbo to properly cool.
CAB CONTROLS
CAB CONTROLS

• You can control the HVAC and the Radio from the screen or manually below the screen
• The screen has more selections for the user
• When placed into reverse, the screen becomes the backup camera.
Dash controls are on the steering wheel
DASH CONTROLS

• Status screen allows you to view the engine status as well as other vehicle readings very precisely (digital display vs. standard analog dash display)
UCONNECT 8.4 RADIO

• The Screen has many features. It controls the:
  – Radio
  – Media
  – Climate
  – Navigation (not activated at this time)
  – Cell Phone
    • Do not recommend syncing your cell phone to the Boat Support. All of your contacts, messages, and more will be uploaded to the truck.
  – When placed into reverse, camera view will show up on the screen
RADIO CONNECTIONS, 12 VDC POWER, AND USB OUTLET

• You can connect into the radio using the USB connection or 6mm audio connection, located on the rear top of the console

• There are three 12 VDC power points
  – Ignition Hot
    • One below the key ignition (12 VDC @ 13 amps)
  – Battery Hot (Always on)
    • Two on the rear top of the console (12 VDC @ 15 amps)

• USB Charging Outlets
  – Battery Hot (Always on)
    • Two sets of USB Outlets (5VDC @ 2.1 amps each)

NOTE: When charging or using devices plugged in to the unit, please make sure the engine is running or the shoreline is plugged in.
CONSOLE- EMERGENCY AND SCENE LIGHTING

**Auxiliary 1 to 4: Off-road Lighting**
- Aux 1- Front Bumper Driving Lights
- Aux 2- Front Lightforce Lights
- Aux 3-Driver Side Body Flood Lights
- Aux 4-Officer Side Body Flood Lights

**Havis Switch Row 1:**
- Emergency Lighting
- Switch 1- Master
- Switch 2 to 7 are other sections that can be turned on/off as needed. The MASTER does not need to be on for switches 2 to 7.

**Havis Switch Row 2:**
- Switch 8: Arrowstick Left
- Switch 9: Arrowstick Right
  - Switch 8 and 9 is center out
  - Switch 8 and/ or 9 override Switch 7, Arrowstick in Red emergency mode.
- Switch 10- Take Down (Whelen Freedom Bar)
- Switch 11- Left Alley (Whelen Freedom Bar)
- Switch 12- Right Alley (Whelen Freedom Bar)
- Switch 13- Rear Flood Lights
- Switch 14 Ground and compartment lights
CONSOLE- SIREN CONTROLS

• Whelen Siren
  – Turn on power switch
  – All siren tones can be turned on by the console control switch or RAM horn
  – Siren can be used as a PA

• Powercall Siren
  – Flip up red cover and turn switch to “on”. Flip cover down to turn off.
The radio is connected to three speakers
1) Cab on the back of the console
2) Interior of the body at the rear, on the ceiling
3) Turn the Whelen Siren to “Radio” mode, and it will project through the front speaker.

Note: The front speaker is controlled by the radio volume knob, and not the Whelen Siren volume control.

The radio is programmed for all normal channels, SOPS, and VHF.

GPS tracking is enabled
MOTOROLA MCFRS FLEET MAP

• The 8500 is not available yet, however, the 7500 Fleetmap has all the channels
  – except AACO FD1 (between FRED and CRF1)
<table>
<thead>
<tr>
<th>Name</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<td>VHF - 7 A DISP Home</td>
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<tr>
<td>MCFRS Boat APX 7500</td>
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<td>Accessed using the &quot;Chan&quot; radio menu option</td>
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VHF RADIO

• VHF Radio can be turned on using the volume knob.

• The VHF radio has all the VHF Channels (more than the Motorola 8500 Mobile Radio)
<table>
<thead>
<tr>
<th>MARINE VHF RADIO CHANNELS LIST</th>
<th></th>
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<tbody>
<tr>
<td>01A</td>
<td>20</td>
</tr>
<tr>
<td>05A</td>
<td>20A</td>
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<tr>
<td>06</td>
<td>21A</td>
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<td>07A</td>
<td>22A</td>
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<td>08</td>
<td>23A</td>
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<td>09</td>
<td>24</td>
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<td>13</td>
<td>28</td>
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<td>14</td>
<td>63A</td>
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<td>15</td>
<td>65A</td>
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<td>16</td>
<td>66A</td>
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<td>17</td>
<td>67</td>
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<td>18A</td>
<td>68</td>
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<td>19A</td>
<td>69</td>
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<td>20</td>
<td>70</td>
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<td></td>
<td>71</td>
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</tbody>
</table>
MOBILE RADIO OPERATIONS

• The Motorola 8500 Mobile radio is primary
• As incidents build out, multiple channels may be used for different divisions and/or to assist with communications
• If having radio problems
  – 7O
  – 7N (If VRS is available)
  – VHF (ECC and also patch with 800 MHz)
MOBILE RADIO OPERATIONS

• The VHF marine mobile radio can enhance operations in a few ways
  – Communicate with other personnel
  – Communicate with boaters
    • Example: Triadelphia Reservoir has boaters that utilize small to medium size craft with VHF radios.
  – VHF usually works well when the 800 MHz radios do not.
From Ram: “When towing in hilly areas, towing a heavy trailer, carrying a heavy load, etc., and frequent transmission shifting occurs, press the TOW/HAUL switch to select TOW/HAUL mode.

This will improve performance and reduce the potential for transmission overheating or failure due to excessive shifting.

When operating in TOW/HAUL mode, transmission up-shifts are delayed, and the transmission will automatically downshift (for engine braking) during steady braking maneuvers.”

If you need Tow/Haul, you need to activate it each time the engine is started.
INTEGRATED TRAILER BRAKE CONTROLLER

• Works with electric and electric over hydraulic (EOH) trailer braking systems

• Adjust GAIN by pressing +/- buttons above the manual trailer brake activation slide switch
  – SSVFD trailers use between 2.5-3.5 GAIN. If the trailer brakes grab hard when pressing the vehicle brakes, lower the GAIN setting number.

• If trailer begins to sway, DO NOT press vehicle brake. Manually squeeze trailer brake controller until sway stops, usually 1-3 seconds.
EXHAUST BRAKE

• Full Power- press switch 1 time (yellow icon)
  – Applies full braking power when accelerator is released

• Smart Brake- press switch 1 more time (green icon)
  – Does not active when accelerator is released
  – Activates full braking power when brakes are applied.

• Off- press switch 1 more time
EXHAUST BRAKE

• Higher engine speeds result in higher exhaust braking force. For optimal braking power, use the exhaust brake with Tow/Haul mode.

• **DO NOT** use the exhaust brake when driving in slippery or icy conditions.
ELECTRONIC STABILITY CONTROL (ESC)

• If the Electronic Stability Control (ESC) light flashes, use the least amount of throttle needed.

• Adapt your speed and driving to the conditions at hand.

• If in deep mud, snow, sand, gravel, etc., the ESC can be switched off if needed.
PTO PROVISION

• PTO Provision is not currently used
HIGH IDLE

• The engine will idle up when more power is needed for accessories, however, idling for long periods of time is bad for the engine.

• The engage high idle:
  1) Make sure the Boat Support is in park, and the parking brake is set
  2) Turn on cruise control
  3) Press and hold “SET” for about 3 seconds (the RPM should rise to approximately 1200 RPM).
SECTION 3

Body Information
BODY SPECIFICATIONS

• Reading Steel Body
• Model SPM48-108DW
• Compartments for gas storage and gas powered tools
  – D1: Driver side lower front compartment
  – D2: Driver side lower middle compartment
  – D3: Driver side lower rear compartment
SECTION 4

Circle Check
CIRCLE CHECK

• Before moving the Boat Support, do a circle check per policy.

• In addition, don’t forget to check on two additional items:
  – Boat 740 Bravo
    • Properly secured with all 4 straps
  – Boat 740 Bravo Motor
    • Properly secured on mount
SECTION 5

Off Road Operations
OFF ROAD OPERATIONS

• Make sure compartment doors are closed and all equipment is secure
• Check clearance, especially with the boat on top
• Trailering in muddy terrain can be difficult. The trailer acts as an anchor, and will make access much harder.
FOUR WHEEL DRIVE

- There are no manual hubs to engage 4 wheel drive
- The manual selector is on the floor, to the right of the driver
- 4 wheel high can be engaged while moving
- 4 wheel low needs to be engaged when stopped
- Be careful not to shift the gearbox into neutral. When putting the transfer switch is in neutral and the transmission is in park, the truck is still in neutral, and will roll.
- Always use the parking brake and wheel chocks, on and off road!
FOUR WHEEL DRIVE

• If stuck:
  – Engage 4 Wheel Drive Low Range
  – Disable Electronic Stability Control (ESC)
  – Do not spin tires above 15 mph
  – You can use “Rocking:”
    • Turn the wheels right and left to clear the area around the wheels
    • Shift back and forth between DRIVE and REVERSE while gently pressing the accelerator.
      – After every 5 rocking cycles, place transmission into NEUTRAL to cool down for at least 1 minute
      – Do not spin tires above 15 mph
WINCH AND ANCHOR POINTS

• Smittybilt Winch located in the Buckstop bumper
  – Bumper cover can be removed to access winch.
    • Place in the cab when not using!

• Anchor Locations
  – (2) front tow hooks
  – Front Hitch
    • Will have the D ring shank in as the default
Winch Specifications

• Winch: Smittybilt XRC 17.5 Gen2 Waterproof
• Pulling capacity up to 17,500 lbs.
• Remote control with 12' lead and LED indicator for operator feedback
• 94' of 7/16" cable with hook and roller fairlead
# WINCH SPECIFICATIONS

<table>
<thead>
<tr>
<th>Cable Layer</th>
<th>Rated Line Pull (Lbs.)</th>
<th>Cumulative Cable Capacity</th>
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<tbody>
<tr>
<td>1</td>
<td>17,500 lbs</td>
<td>19.68 ft</td>
</tr>
<tr>
<td>2</td>
<td>14,583 lbs</td>
<td>45.92 ft</td>
</tr>
<tr>
<td>3</td>
<td>12,411 lbs</td>
<td>75.44 ft</td>
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<tr>
<td>4</td>
<td>10,822 lbs</td>
<td>93.48 ft</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Line Pull (Lbs.)</th>
<th>Line Speed (Ft/ Min)</th>
<th>Motor Current</th>
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<tbody>
<tr>
<td>0</td>
<td>22.632</td>
<td>75 amps</td>
</tr>
<tr>
<td>3000</td>
<td>10.824</td>
<td>140 amps</td>
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<tr>
<td>6000</td>
<td>7.872</td>
<td>210 amps</td>
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<tr>
<td>9000</td>
<td>6.232</td>
<td>270 amps</td>
</tr>
<tr>
<td>12000</td>
<td>5.248</td>
<td>330 amps</td>
</tr>
<tr>
<td>15500</td>
<td>3.936</td>
<td>390 amps</td>
</tr>
<tr>
<td>17500</td>
<td>3.2472</td>
<td>435 amps</td>
</tr>
</tbody>
</table>
WINCH OPERATIONS

• Link to MANUAL (Model 97417)
WINCH MAINTENANCE

• Run the winch **MONTHLY** at a minimum! This gets the gears lubricated, which extends the life of the unit.

• Smittybilt recommends (Page 12):
  – It is highly recommended that the winch be used regularly (once a month). Simply power the cable out 15m (49 feet), free spool 5m (16 feet), and then power back in.
AFTER OFF-ROADING

• Disengage 4 wheel drive
• Make sure no mud or debris are stuck between the dual tires
• Check Tire Pressure
• Wash the unit, including the underbody
SECTION 6

Towing
TOWING

• Rear Hitch
  – 2.5 inch, Class V Hitch
  – 20,000 lbs. pull (WD or non WD)
  – 2,700 lbs tongue (WD or non WD)
    ➢ Limited by Chassis: Max tow is 17,170 lbs.
    ➢ Limited by lowest rated component (i.e. shank or ball)

• Front Hitch
  – Designed to be used an anchor point or for towing a trailer from the front of the truck.
    • Front towing is useful for maneuvering a boat trailer into a tight ramp situation
USING TOW/HAUL MODE

• See Slide 30
ADDITIONAL RESOURCES

• RAM Manual
QUESTIONS???

• Email fleet@ssvfd.com