



# Scarborough Fire Department

## Scarborough, Maine



### Standard Operating Guidelines

<b>Book:</b>	<b>Routine Operations</b>
<b>Chapter:</b>	<b>Apparatus Operations</b>
<b>Subject:</b>	<b>2120 – Operator Training and Certification</b>
<b>Revision Date:</b>	<b>3/17/2009 Revised 12/21/18</b>
<b>Approved by:</b>	<i>B. Michael Thurlow</i>

#### PURPOSE

The purpose of this policy is to develop a standardized operator training and certification policy to ensure that all operators of emergency apparatus are properly trained, understand Maine State Motor Vehicle Laws and Scarborough Fire Department SOPs pertaining to the operation of department apparatus. The policy sets minimum requirements for certification and establishes a measurable training process for employees to demonstrate proficiency in apparatus operations.

#### POLICY

- A. Human Resources will submit a list of member's driver's license numbers to the Police Department for validation and a driving history check on or before August 1<sup>st</sup> annually.
- B. The Fire Chief will certify any or all on this list as certified operators. This list will become the approved Operator Roster for the Department, for that year.
- C. The Fire Chief may limit the certification of an operator to specific apparatus or type of apparatus based on the degree of training, experience, and competency of the candidate.
- D. Request for operator training for a student candidate must be submitted to the appropriate Captains and Deputy Chiefs on the SOG 1549 "Authorization for Operator Training Form". The student must have completion certificates for EVOC and any additional certificates required for the requested vehicle. The Deputy Chief may authorize the candidate to train with an approved instructor upon receipt of their documentation and an acceptable motor vehicle driver's license check.
- E. The operator training instructor will use the appropriate unit SOG# 1552 – 1560 form, for the vehicle being trained on as the objective base for the operator training. When the training objectives are met and signed off by the instructor an evaluator will perform the certification test of the student. The evaluator will sign off on the certification form (SOG 1550 or 1551) and forward their recommendation to the Fire Chief for authorization to operate. If approved the student's name shall be added to the approved Operator Roster for the Scarborough Fire Department.
- F. Any required minimum of driver training hours, number of Aerial ladder sets, and/or additional separate certifications will be determined by the Fire Chief.
- G. Any time a certified department operator has been convicted of any serious driving offense in a personal vehicle i.e. Operating under the Influence, Driving to Endanger, or a drivers

license suspension for any reason, they shall report that conviction to the Captain or Deputy Chief immediately. They in turn will forward the information to the Fire Chief.

- H. An authorized operator may be removed from the Department Operator Roster at any time by the Fire Chief.

## **PREREQUISITES**

- A. Instructor qualifications:
  - a. An instructor shall be a person who by possession of a recognized degree, certificate, professional standing or skill, and who by knowledge, training, and experience have demonstrated the ability to effectively teach cognitive and practical skills, and has been appointed by the Fire Chief to conduct the operator training.
- B. Student qualifications
  - a. Possession of a valid driver's license with acceptable driving history.
  - b. Possession of a certificate of completion from an approved EVOC training course.
  - c. Possession of certifications of completion are required for Aerial Ladder (state level) and Pump (department level)
  - d. Completion of Level 2 firefighter training in the Scarborough Fire Department training program, or EMT certification, or approval of the Fire Chief.

## **PROCEDURES**

- A. Prior to conducting road instruction the student must read, understand, and review the following documents:
  - a. SOG 1549 - Authorization for Operator Training
  - b. SOG 1550 - Initial Operator Certification
  - c. SOG 1551 - Replacement Vehicle Certification
  - d. SOG 2130 - Apparatus Backing and Spotting
  - e. SOG 2135 - Plymovent Exhaust System
  - f. SOG 2140 - Apparatus Accident Policy
  - g. SOG 3010 - Emergency Apparatus Driving
  - h. SOG 3015 - Emergency Response Codes
  - i. SOG 3020 - Safe Vehicle Positioning
  - j. And the following Appendices which are included at the end of this SOG
    - i. Appendix A - Town of Scarborough Insurance & Personal Liability Policy.
    - ii. Appendix B - Pertinent sections of Maine State Law Title 29A.
    - iii. Appendix C - NFPA 1002 Standards on Apparatus Operator Qualifications
    - iv. Appendix D - Recommended following distance chart
    - v. Appendix E – Engine Brake System
    - vi. Appendix F – Automatic Tire chains
- B. The road instruction portion of the training includes the following:

- a. Student must have the authorization of the Fire Chief or his designee to begin road instruction.
  - b. No student shall conduct operator training in any fire department apparatus outside of this formal training program.
  - c. Student must conduct a vehicle mechanical check of the unit before starting each training exercise. If any failures or defects are found driver training must be terminated.
  - d. First time students (No other prior certifications) must successfully complete an authorized cone course to demonstrate the ability to control the apparatus in a non-emergency controlled environment before attempting on the road training.
  - e. Student must successfully complete a Fire Department approved road course which incorporates the objectives listed in N.F.P.A. 1002 section 4.3.1-.6 and is designed for the district the apparatus serves.
  - f. Student must receive the minimum hours of driving time required.
  - g. All completed training must be documented on the appropriate operator training forms (SOG 1552 – 1560).
- C. Onboard components and specialty equipment portion of the training includes the following:
- a. Student must receive training on and show familiarity with the apparatus components, i.e. pump, aerial ladder, compressed air foam systems (CAFS). OR demonstration of familiarity with the departments specialized units components & specializes equipment, ie, command van, heavy rescue, tank units, marine units, and canteen.
  - b. Any minimum hours of operation and/or numbers of sets (example: Aerial Ladder) must completed.
  - c. All completed training must be documented on the appropriate operator training forms (SOG 1552 – 1560).
- D. New Operators - Certification to operate department apparatus and/or specialized units may be granted after:
- a. An approved evaluator will perform the certification test of the student. The evaluator will sign off the certification form SOG 1550 and forward their recommendation to the Fire Chief
  - b. If approved by the Fire Chief, the students name will be added to the approved Operator Roster.
- E. Replacement Unit - Certification to operate department replacement apparatus and specialized units may be granted after:
- a. Firefighter must demonstrate the correct and safe use of all new attached components and equipment which is part of the replacement vehicle.
  - b. Firefighter must successfully complete the required driving hours of a Fire Department approved road course which incorporates the objectives listed in N.F.P.A. 1002 section 4.3.1-.6 and is designed for the district the apparatus serves.
  - c. An evaluator will perform the certification test of the student. The evaluator will sign off the certification form SOG 1551 and forward their recommendation to the Fire Chief.
  - d. If approved by the Fire Chief, the students name will be added to the approved Operator Roster.
- F. Marine operator training and certification - Prior to conducting marine operator training the student must read and understand the following documents:

- a. SOG 1630 Marine Rescue Dispatch Policy and
- b. SOG 3710 Marine Rescue Operations.

All training and certification needs are combined in one form (SOG 1559 Marine Operator Training & Certification Form) and are exempt from using SOG 1550 or SOG 1551.

- G. Canteen Operator Training and certification is combined in one form (SOG 1560 Canteen Operator Training & Certification Form) and is exempt from using SOG 1550 or SOG 1551

## **RESPONSIBILITIES**

- A. It is the responsibility of operator training instructors to follow these guidelines to assure students are trained to a standardized program that meets applicable codes, NFPA 1002 Sec 4.3 Standards, State Laws, and Departments SOG.
- B. It is the responsibility of the student to maintain all training forms required for certification.
- C. It is the responsibility of students to complete this operator training/certification program prior to operating unsupervised any department vehicle.
- D. It is the responsibility of all members of the department to notify their supervisor of any serious driving offense in a personal vehicle i.e. Operating under the Influence, Driving to Endanger, or a Driver's License Suspension for any reason.

## **REFERENCES**

- A. Maine State Law, MRS 29A
- B. NFPA 1002 sections 4.3.1- 4.3.6
- C. NFPA 1451 sections 4.2.1.2 – 10.3.2
- D. NFPA 1500
- E. Fire Department SOP's

## Appendix A

### Town of Scarborough Insurance & Personal Liability Policy

#### NOTICE TO FIRE DEPARTMENT VEHICLE DRIVERS CONCERNING CONDITIONS AND LIMITATIONS OF PERSONAL AND CIVIL LIABILITY

If you are involved in an accident while operating a Scarborough Fire Department vehicle or while driving a privately-owned vehicle in connection with your duties for the Scarborough Fire Department, the following conditions and limitations apply to your personal liability:

- A. As long as you were acting within the course and scope of your duties as a member of the Scarborough Fire Department, the following shall apply:
  - 1. You are covered by the Town's insurance unless you are found to be criminally liable. The Town's insurance will provide a defense and pay for a judgment against you resulting from a covered loss.
  - 2. If you were using a privately owned vehicle, the insurance on that vehicle provides the primary coverage.
  - 3. If, for some reason (such as criminal liability), insurance coverage does not apply, the Maine Tort Claims Act limits your personal liability to \$10,000 for a single accident.
  
- B. If you were acting outside the course and scope of your duties as a member of the Scarborough Fire Department (if, for example, you used a Fire Department vehicle for unauthorized personal purposes while off duty), the following shall apply:
  - 1. You are not protected by the Town's insurance coverage or by the Maine Tort Claims Act.
  - 2. You would be responsible for your own costs of defense and there would be no limit on your personal liability.

**NOTE:** This is a statement of general principles. Your specific legal rights and liabilities may vary according to the circumstances of a particular incident.

## **Appendix B**

### **Pertinent Sections of Maine State Law, Title 29 A**

#### **Title 29-A: MOTOR VEHICLES - Chapter 19: Operation**

§2054. Emergency and auxiliary lights; sirens; privileges

**4. Right-of-way.** An authorized emergency vehicle operated in response to, but not returning from, a call or fire alarm or operated in pursuit of an actual or suspected violator of the law has the right-of-way when emitting a visual signal using an emergency light and an audible signal using a bell or siren. On the approach of any such vehicle, the operator of every other vehicle shall immediately draw that vehicle as near as practicable to the right-hand curb, parallel to the curb and clear of any intersection and bring it to a standstill until the authorized emergency vehicle has passed. A violation of this subsection is a Class E crime that, notwithstanding Title 17-A, section 1301, is punishable by a minimum fine of \$250 for the first offense and for a 2nd offense occurring within 3 years of the first offense a mandatory 30-day suspension of a driver's license.

**5. Exercise of privileges.** The operator of an authorized emergency vehicle when responding to, but not upon returning from, an emergency call or fire alarm or when in pursuit of an actual or suspected violator of the law may exercise the privileges set forth in this subsection. The operator of an authorized emergency vehicle may:

- A. Park or stand, notwithstanding the provisions of this chapter
- B. Proceed past a red signal, stop signal or stop sign, but only after slowing down as necessary for safe operation.
- C. Exceed the maximum speed limits as long as life or property is not endangered, except that capital security officers and employees of the Department of Corrections may not exercise this privilege
- D. Disregard regulations governing direction of movement or turning in specified directions.
- E. Proceed with caution past a stopped school bus that has red lights flashing only:
  1. After coming to a complete stop
  2. When signaled by the school bus operator to proceed

Nothing in this subsection prohibits the operator of an authorized emergency vehicle from activating emergency lights for the limited purpose of warning motorists when entering or exiting structures designed to house the emergency vehicles.

**6. Emergency lights and audible signals.** The operator of an authorized emergency vehicle who is exercising the privileges granted under subsection 5 shall use an emergency light authorized by subsection 2. The operator of an authorized emergency vehicle who is exercising the privileges granted under subsection 5, paragraphs B, C, D and E shall sound a bell or siren when reasonably necessary to warn pedestrians and other operators of the emergency vehicle's approach.

**7. Duty to drive with due regard for safety.** Subsections 4, 5 and 6 do not relieve the operator of an authorized emergency vehicle from the duty to drive with due regard for the safety of all persons, nor do those subsections protect the operator from the consequences of the operator's reckless disregard for the safety of others.

## Appendix C

### Applicable sections from NFPA 1002 Standard on Apparatus Driver/Operator Professional Qualification, 2003 Edition

#### 4.3 Driving/Operating

**4.3.1\*** Operate a fire department vehicle, given and a predetermined route on a public way that incorporates the maneuvers and features, specified in the following list, that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable state and local laws, department rules and regulations, and the requirements of NFPA 1500, Section 4.2:

- (1) Four left turns and four right turns
- (2) A Straight section of urban business street or a two-lane rural road at least 1.6 km (1 Mile) in length
- (3) One through -intersection and two intersections where a stop has to be made
- (4) One railroad crossing
- (5) One curve, either left or right
- (6) A section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow two lane changes
- (7) A downgrade steep enough and long enough to require down-shifting and braking
- (8) An upgrade steep enough and long enough to require gear changes to maintain speed
- (9) One underpass or a low clearance or bridge

**(A) Requisite Knowledge.** The effects on the vehicle control of liquid surge, brake reaction time, and load factors; effects of high center of gravity on roll-over potential, general steering reaction, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, and gear patterns; negotiating intersections, railroad crossings, and bridges; weight and height limitations of both roads and bridges; identification and operation of automotive gauges; and operational limits.

**(B) Requisite Skills.** The ability to operate passenger restraint devices; maintain safe following distance; maintain control of the vehicle while accelerating; decelerating, and turning, given road, weather, and traffic conditions; operate under adverse environmental or driving surface conditions; and use automotive gauges and controls.

**4.3.2\*** Back a vehicle from a roadway into restricted spaces on both the left and right sides of the vehicle, given a fire department vehicle, a spotter, and restricted spaces 3.7 m (12 ft) in width, requiring 90-degree right-hand and left-hand turns from the roadway, so that the vehicle is parked within the restricted areas without having to stop and pull forward and without sticking obstructions.

**(A) Requisite knowledge.** Vehicle dimensions, turning characteristics, spotter signaling, and principles of safe vehicle operation.

**(B) Requisite Skills.** The ability to use mirrors and judge vehicle clearance.

**4.3.3\*** Maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a fire department vehicle, a spotter for backing, and a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping to change the direction of travel and without striking the obstructions.

**(A) Requisite knowledge.** Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operations

**(B) Requisite Skills.** The ability to use mirrors and judge vehicle clearance.

**4.3.4\*** Turn a fire department vehicle 180 degrees within a confined space, given a fire department vehicle, a spotter for backing up, and an area in which the vehicle cannot perform a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without striking obstructions within the given space.

**(A) Requisite knowledge.** Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operations

**(B) Requisite Skills.** The ability to use mirrors and judge vehicle clearance.

**4.3.5\*** Maneuver a fire department vehicle in areas with restricted horizontal and vertical clearances, given a fire department vehicle and a course that requires the operator to move through areas of restricted horizontal and vertical clearances, so that the operator accurately judges the ability of the vehicle to pass through the opening and so that no obstructions are struck.

**(A) Requisite knowledge.** Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operations

**(B) Requisite Skills.** The ability to use mirrors and judge vehicle clearance.

**4.3.6\*** Operate a vehicle using defensive driving techniques under emergency conditions, given a fire department vehicle and emergency conditions, so that control of the vehicle is maintained.



## **Appendix D**

### **Stopping Distance Chart**

#### **Light 2 – Axle Trucks**

<b>Speed</b>		<b>Driver Reaction Distance (feet)</b>	<b>Vehicle Braking Distance (feet)</b>	<b>Total Stopping Distance (feet)</b>
<b>Miles Per Hour</b>	<b>Feet per Second</b>			
10	15	11	7	18
20	29	22	30	52
30	44	33	67	100
35	51	39	92	131
40	59	44	125	169
45	66	50	165	215
50	73	55	225	280
55	81	61	275	336
60	88	66	360	426

#### **Heavy 2 – Axle Trucks**

<b>Speed</b>		<b>Driver Reaction Distance (feet)</b>	<b>Vehicle Braking Distance (feet)</b>	<b>Total Stopping Distance (feet)</b>
<b>Miles Per Hour</b>	<b>Feet per Second</b>			
10	15	11	10	21
20	29	22	40	62
30	44	33	92	125
35	51	39	125	164
40	59	44	165	209
45	66	50	210	260
50	73	55	255	310
55	81	61	310	371
60	88	66	370	436

#### **3 – Axle Trucks & Combinations**

<b>Speed</b>		<b>Driver Reaction Distance (feet)</b>	<b>Vehicle Braking Distance (feet)</b>	<b>Total Stopping Distance (feet)</b>
<b>Miles Per Hour</b>	<b>Feet per Second</b>			
10	15	11	13	24
20	29	22	50	72
25	37	28	80	108
30	44	33	115	148
35	51	39	160	199
40	59	44	205	249
45	66	50	260	310
50	73	55	320	375
55	81	61	390	451
60	88	66	465	531

## Appendix E

### Engine Brake System Jake Brakes® Information/Operation

#### Engine brake system introduction

- This manual contains useful information on the operation.
- Read it before you drive your Jake-equipped vehicle.
- The Jake Brake is a diesel engine retarder that uses the engine itself to aid in slowing and controlling the vehicle.
- When activated, the Jake Brake alters the operation of the engine's exhaust valves so that the engine works as a power-absorbing air compressor. This provides a retarding action to the wheels.

**THE JAKE BRAKE IS A VEHICLE SLOWING DEVICE, NOT A VEHICLE STOPPING DEVICE. IT IS NOT A SUBSTITUTE FOR THE SERVICE BRAKING SYSTEM. THE VEHICLE'S SERVICE BRAKES MUST BE USED TO BRING THE VEHICLE TO A COMPLETE STOP**

- The operation of the Jake Brake is fully automatic, once it is turned on.
- The controls for the Jake consist of either two switches mounted on the upper console above the driver seat.
- Since the Jake depends on the free flow of engine oil for operation, be sure to let the engine warm up before switching it on. Normally, the Jake is then left on, except as note below, whenever you are driving.
- A multi-position PROGRESSIVE BRAKING system is standard equipment for just about all Jake Brake models. This feature lets you select specific levels of retarding power by activating varying numbers of Jake Brake housings.
- Three Speed System (Separate master and progressive braking switches)
- It is referred to as the three-speed system, and there are two switches. The master switch turns the Jake Brake on and off, the second switch, which performs the Progressive Braking function, controls the amount of retarding: low (1), medium (2) and high (3).
- All Jake Brakes have two additional switches, one activated by the operation of the transmission, and the other by the position of the throttle. These two switches provide the fully automatic feature of the Jake Brake.
- Here's how this system works.
- With the automatic transmission, the Jake Brake is activated when you move your foot off the throttle, and deactivated when you re-apply pressure to the throttle. The torque converter (which is part of the automatic transmission) is locked or unlocked with the activation or deactivation of the Jake Brake. The system has a pressure sensing switch that deactivates the Jake Brake when the vehicle slows to about 10 MPH, to prevent stalling the engine.

Note that the Jake Brake will also remain activated after the brake pedal has been depressed, giving the combined power of both the Jake and the service brakes.

## Driving tips

### Dry Pavement - Flat Roads

- If you are driving on flat, open stretches with a light load and greater slowing power isn't required, you should keep the progressive braking switch in the low, or number 1 or number 2, position for medium load.
- When you are carrying a heavy load and the pavement is dry, your progressive braking switch should be in the high, or number 3, position.
- **All of the Present Fire Department Units equipped with the Jake Brake system should using the high position whenever the system is activated as they all are classed heavy load.**
- To slow your vehicle, merely take your foot off the throttle, and the Jake provides the necessary retarding power. Apply the service brakes when it's time to come to a complete stop.

### Control Speed

- An explanation of “control speed” is helpful in understanding how to use a Jake while descending a grade. Control speed is the constant speed at which the forces pushing the vehicle forward on a grade are equal to the forces holding it back, without using the service brakes.
- Descending a Grade the following road speeds and grades are given as an example only! Actual data will vary.
- Depending on the road and load conditions, you may be able to descend a 6% grade safely at 10 mph, without a Jake Brake.
- With the Jake Brake, you might be able to descend that same grade at 25 mph, and still remain under control.
- Under some circumstances, you may want to come down a grade at a faster rate than the control speed. However, you may have to apply your service brakes intermittently to prevent over speeding the engine and to keep the vehicle at a safe speed.
- Frequent use of the service brakes will cause them to heat up and reduce their stopping ability. The result can be dangerous brake fade.
- Since the Jake is most effective at rated engine speeds, gear selection is very important. You obtain maximum retarding power when you use the lowest possible gear without exceeding the recommended engine speed There are other circumstances in which you might want to descend a grade at a rate slower than the control speed. This is done by selecting a lower gear, one that will not over speed the engine. You may have to apply the service brake to obtain the desired lower speed.
- As a general rule of thumb for maintaining control speed, estimate the gear that you would use to climb the grade. Usually this is the same gear that can be used for a controlled descent with a Jake Brake.
- Like any product, the Jake can be abused. Take, for instance, the example of the 6% grade above which you could descend under control only at 10 mph without a Jake, but at 25 mph with a Jake you could not descend that same hill at 50 mph and still expect to remain under control. Get to know how much slowing power the Jake can provide. Don't exceed a safe control speed.
- It's always a good idea to determine if your Jake Brake is operational before beginning a long, steep descent. This can be done by lifting your foot briefly off the throttle. You will feel the Jake Brake going into action.

### **Slippery Pavement operation**

- **Do not use** the Jake Brake when operating the vehicle on **wet or slippery pavement.**
- When driving on wet or icy pavement, Place the master switch in the off
- position and use the same gear you would normally use under these conditions.

**Use of the Jake brake when wet or icy conditions exist can cause the rear tires to skid/lockup resulting in loosing control of the vehicle.**

### **Operational problems**

- If the Jake Brake will not shut off at all, turn the engine off immediately and call Public Works of assistance.

**DO NOT RUN THE ENGINE. DOING SO MAY CAUSE SEVERE ENGINE DAMAGE.**

## Appendix F



### ONSPOT OPERATING INSTRUCTIONS

Check that your Onspots are working properly before your trip.

Chains must be engaged and disengaged while the vehicle is moving.

- Chains must be engaged when traveling between 2 mph and 25 mph
- Chains must be disengaged when traveling between 2 mph and 35 mph.
- Vehicle must not exceed 35 mph with the chains engaged.
- Vehicle can stop on the chains, and then start moving again, as long as the switch is still in the engaged position.
- Onspots are most effective on ice and loose or packed snow up to 6 inches in depth.
- Engage chains before reaching slippery conditions. Onspot will assist traction in forward, reverse, and in braking conditions.
  - Avoid locking the wheels.
- If you have not engaged your Onspots before stopping on a slippery road:
  - Spin tires up to 5 mph,
  - Engage Onspots,
  - When you feel chains bite, stop spinning wheels and drive on slowly.