ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672
7326 HOUSE TRANSPORTATION

PURSUIT OF AUGUST 20, 1986 INQUIRY

On September 3 and 4 we contacted the elevator manufacturers of the attached list to obtain their comments on "our submitted input" of August 20.

No. 3 had already answered by letter, returning the file and confirming their inaptitude to supply the type of equipment required.

The answers from suppliers 1, 2, 4, and 5 are all somewhat containing the same message.

- The proposed installation does not meet recognizable code.
- They have enough business without dealing with special headache projects.
- Cannot be of any help, have to decline, or cannot do anything for us.
- They do not produce the type of hardware required and cannot adapt...

Potential supplier No. 6 showed definite positive but cautious interest. The sent us a copy of applicable code. In discussions their speaker acknowledges the possibility of using a rack and pinion drive and recognize it as a most compact drive system. He also mentions that they would have no problem to incorporate the standard safety features as "overspeed", "emergency power" etc., on this type of drive.

On September 5 we rechecked with Mr. Ken Schoenlein of Crane UNIDYNAMICS. Without being worded it appears that the slow response is also due to at least certain hesitations on the subject of safety without an elevator shaft; Realizing that the alternate operational functions are somewhat arbitrary in approval and possibly restrictive in operations. I have been promised a written answer on the subjects (see September 16 letter). Otherwise K.S. feels that Crane UNIDYNAMICS could comply with the geometric restrictions, but the comment is made without having done a detailed review of the material sent by AMHS. (This report was written around September 10).

dmd/075/diry2

Rec ID	co		
address1		address2	
city		state	
zip			
attn			

1 Schindler Haughton
Elevators & Escalators — 1123 N.W. 51 Street
Seattle — WA
98107
Attn: John Albrecht

2 Montgomery Elevators
1207 Westlake Avenue North
Seattle — WA
98109
Attn: Tom Olmsted

3 Westinghouse Elevator Co.
6150 6th Street — P.O. Box 80984
Seattle — WA
98108
Attn: Tony Weiss

4 U.S. Elevator
2920 N.E. Blakeley Street
Seattle — WA
98105
Attn: Bob Dempsey

5 Otis Elevator
3161 Elliott Avenue — Suite 320
Seattle — WA
98121
Attn: Rick Lewis

6 American Elevator Co.
1258 1st Avenue South
Seattle — WA
98134
Attn: Marc Verdetti

7 Crane Unidynamics
10616 Trenton
St. Louis — MO
63132
Attn: Ken Schoenlein, Manager

AMERICAN ELEVATOR

1258 First Avenue South • Seattle, Washington 98134 • (206) 623-2400 / Anacortes • (206) 293-0516

August 15, 1986

Mr. George Diry
Alaska State Ferry System
P.O. Box 116
Douglas, AK 99824

Re: Shipboard elevators

Dear Mr. Diry:

Thank you for your recent inquiry regarding our elevating equipment for your State Ferry System.

To recap our conversation breifly, we discussed a cantileverd designed carframe, with an car enclosure suitable for freight and/or attendant operation.

I feel confident that we could meet your specifications in regard to elevator equipment and installation. However, I understand that the proposed system is to operate for some portion of its travel without the benefit of a shaft enclosure, which we must advise you is required by code.

I have enclosed copies of the more salient sections from ANSI A17.1 Elevator and Escalator National Code for ready reference to the rules we must abide.

We would welcome the opportunity to review your plans and specifications for elevators and pledge our assistance in selecting the best equipment for your vessels.

Yours truly,

Marc Vendetti, President
American Elevator Company

V/kl
encl.

MEMORANDUM

State of Alaska
Department of Transportation & Public Facilities

TO: George Diry
Naval Architect
Marine Facilities Engineering
Alaska Marine Highway System

DATE: August 7, 1986

FILE NO:

TELEPHONE NO: 465-2734

FROM: John McGrath
Senior Construction Manager
Marine Facilities Engineering
Alaska Marine Highway System

SUBJECT: Vessel Access
(M/V LeCONTE
Elevator)
LC/30352021

Regarding your report (draft) subject project with options a) - f), and subsequent addendum addressing option g); it was concluded in our meeting August 6 that option g) will provide the most useful lift; we shall proceed with development of option g).

As the next event prepare a package of information upon which potential suppliers of elevator equipment can advise us of the mechanical possibilities. The information should include enlarged plan and elevations of affected areas; performance requirements of the lift mechanism; special features, or limitations; and the industry, and agency requirements to which the elevator will be both built, and installed to.

We shall review this information together August 18 by which time I presume you will have made some preliminary contacts with potential suppliers.

JM/mh

cc: Joe Camp - Deputy Commissioner, AMHS, with addendum report
Harold Moeser - Director, Marine Facilities Engineering, AMHS
Tom Shanley - Asst. Port Steward, Marine Operations, AMHS

M/V LECONTE elevator - addendum to mid-July review

g) An "inside" landing location to be further investigated is one within the men's restroom.

The floor plan changes can incorporate the required modifications to the restrooms for both genders which are to provide "handicapped" toilet space.

A sketch of the space with minimum area for a wheelchair and attendant's lift, properly located to give access to the foyer area, is shown on sketch 11. It provides net platform dimensions of 36' x 62' and approximately 8' of space along the inboard machinery casing wall to contain the guide track(s), the driving machinery and the vertical portion of the cantilevered structure to support the "personnel caged platform." A complete "A" grade enclosure is required from the upper deck to the sun (boat) deck, including a self closing door of appropriate rating. The entire platform and its components must be made of steel.

To alleviate the overhead clearance requirements which are existing for the standard winding drum approach, and likely cannot be met, we suggested to the lift manufacturer to look at a chain drive of the type used on fork lifts. The intent being to contain the whole drive and support structure within a vertical space approximately 3 feet long and with a maximum protrusion from the supporting wall of 8 in., this excludes the horizontal cantilevered portion of the structure which is to be incorporated in the platform floor. But the manufacturer prefers to stay with the rack and pinion drive with which they have some experience.

The speculative factors due to custom manufacture and covered in 2(a) still exist, they cannot be positively answered before a certain period of time which may be critical to the realization of the program within the intended schedule.

Proposal drawings are expected which may answer some of the relevant questions.

In practice, while no solid obstruction will exist on the main deck due to the absence of tower, it will still be directed to keep the auto lane under the platform clear for a certain length, say 10 to 12 feet, resulting in the loss of one car space.

- SEE ATTACHMENTS TO USCG/GILSTON LETTER FOR DESCRIPTION OF 'g'

DRAFT

M/V LeCONTE Elevator

This is a brief review of the investigated options to provide vertical access from the main (car) deck to the upper (accommodations) deck. Access to the forward doors is heavily favored to parallel the original staircase, but we may also consider that 25% of the harbors served use stern loading.

1. Stairway Chairlift - represented by the "Silver glide" of the American Stairglide Corp., or the "Wecolator" of the Cheney Co.

   After detailed design study and inquiries with the representatives it is established that the foreign-built hardware cannot be adapted and warranted to bridge the 68 inch gap existing on the starboard face of the staircase at the first landing level.

   The port facing is irregular, with many ducts and cableways and the sharp "male" corner cannot be negotiated with this system.

2. Elevators, Locations and Schemes:

   a) With access to foyer:
      Requires a location @ frames 47 to 51, which condemns a large locker on the main deck.

      A permanent elevator casing on the inboard side (port) of the access and machinery casing would contribute an obstruction and hazard to this parking lane. The space penalty would be at least 3 to 4 vehicles, almost 7% to 10% of capacity.

      The cantilevered open type platform at this location would limit main deck interference but preliminary inquiry suggest a lengthy period before ascertaining the possibility. Regulatory compliance is also in question. The prospective supplier does not have a "standard" accepted drive system for this purpose. The rack and pinion type which would be the most compact have not up to date been used by the general public. The manufacturer also contemplated the ball screw approach which we feel may bring further functional complications in a cantilevered scheme. Their most standard winding drum approach has the drive machinery at the bottom, which in this case would set it below deck.

      The required machinery and/or cantilevered frame space, below deck, demands precise compartment investigation. The location is at the forward top end of the engine room. The likelihood of many interferences may preclude installation in this area altogether.

Those factors make it speculative to pursue this solution.

b) The cantilevered open type option can also be contemplated between frames 40 and 42½, with the inner platform edge 17 feet off centerline on the port side. The landing on the upper LVL would be in lieu of the existing life preserver storage under an access ladder. A slight after move of the ladder and inching outboard still make for a squeezy landing.

The remarks made for case (a) apply here, with the exception that the below deck space, a void partly over the sponson framing, shall not present any significant obstacle. A truss core or honeycomb type panel hinged on the side would cover the frame cavity when the lift is not in use and stored at the upper landing.

c) After upper deck location: (sketches 8, 9, 10)
The location would be between frames 97 to 102, on either port of starboard, 7'6" to 11'9" off the centerline.

At this location the elevator constitutes only a partial access interference and only for vehicles using the stern ramp. The space penalty can be nullified by judicious placement of the lift system.

The below main deck space is part of the steering compartment where interferences are amenable to treatment. Depth below deck is limited however around 7 to 8 feet. The upper deck required casing will interfere with the mooring arrangement on the side of the elevator. A new deck layout will be necessary.

Like in (b) landing at the upper deck is not within the confines of the accommodation spaces, which makes for a more readily acceptable open lift system, i.e. without solid casing between main and upper deck. Such an arrangement can, at this location, make use of standard industrial personnel lifts.

This latter alternative would:

- permit a shallow depth of installation below deck.
- provide standard construction common to multiple units and likely more reliability than a customized installation.
- provide the flexibility to remove all obstruction on the main deck level if ever required.
- represent the most cost effective alternative lift.

The objection to this elevator location is the need to maintain a 27 inch+ access lane to the front loading doors. This may impose new guide tracks for the 5 smaller vehicles of the extreme starboard lane. A total of 9 to 9½ foot width is available which makes this attempt a possibility, admitting certain restrictions, like access to the vehicles from one side only.

d) Foredeck location: (sketches 1, 5, and 7)
Since the loading frequency is higher from the front doors that the stern ramp, it seems appropriate to persist in finding a forward location.

A centerline lift between frames 8 to 12 fulfill this requirement. The major differences with solution (c) are:

- The upper deck layout and visual interferences may prove more objectionable from an operation point of view.
- The below main (car) deck space over the bow thruster unit is more depth limited, a direct result is that a standard industrial platform, as contemplated above, will be an estimated 20 inches above the desired deck level requiring a steep access ramp.
- The main deck level loses 1 vehicle space, approximately 2% of the total capacity.
- The upper deck landing will be made higher over the deck level by the sheer and crown geometry. The resulting landing space would be effectively shorter than in (c).

e) Foyer/Officer's mess: (sketches 1, 4, and 6)

A possibility for the cantilevered type open platform is between frame 53 to 56, port side of the machinery, casing, with upper landing through the foyer after bulkhead. This location presents the least structural complications for this solution and the "factory overhead" structure and mechanism may fit. Plan room requires channelling of the support/drive track within the machinery casing.

Beside the proviso already quoted in (b) there is the need to inch into the passageway to attempt procuring the minimum width.

Last but not least, cutting into the officer's mess could prove demoralizing.

f) Forward end of the machinery and access casing:

We gave thought to a location between frame 35 and 38 on the starboard forward end of the casing. The support leg (the outboard one if two are fitted) would here have to be telescopic and self retractable upward. The scheme gets sophisticated for a custom installation. Besides the difficult structural support other inconvenience are:

- Still restrictive landing, and within the accommodation spaces.

- Elimination of 3 seats in the forward observation lounge.

- Take some area in the men's restroom, which may prove penalizing when rearranging the latter.

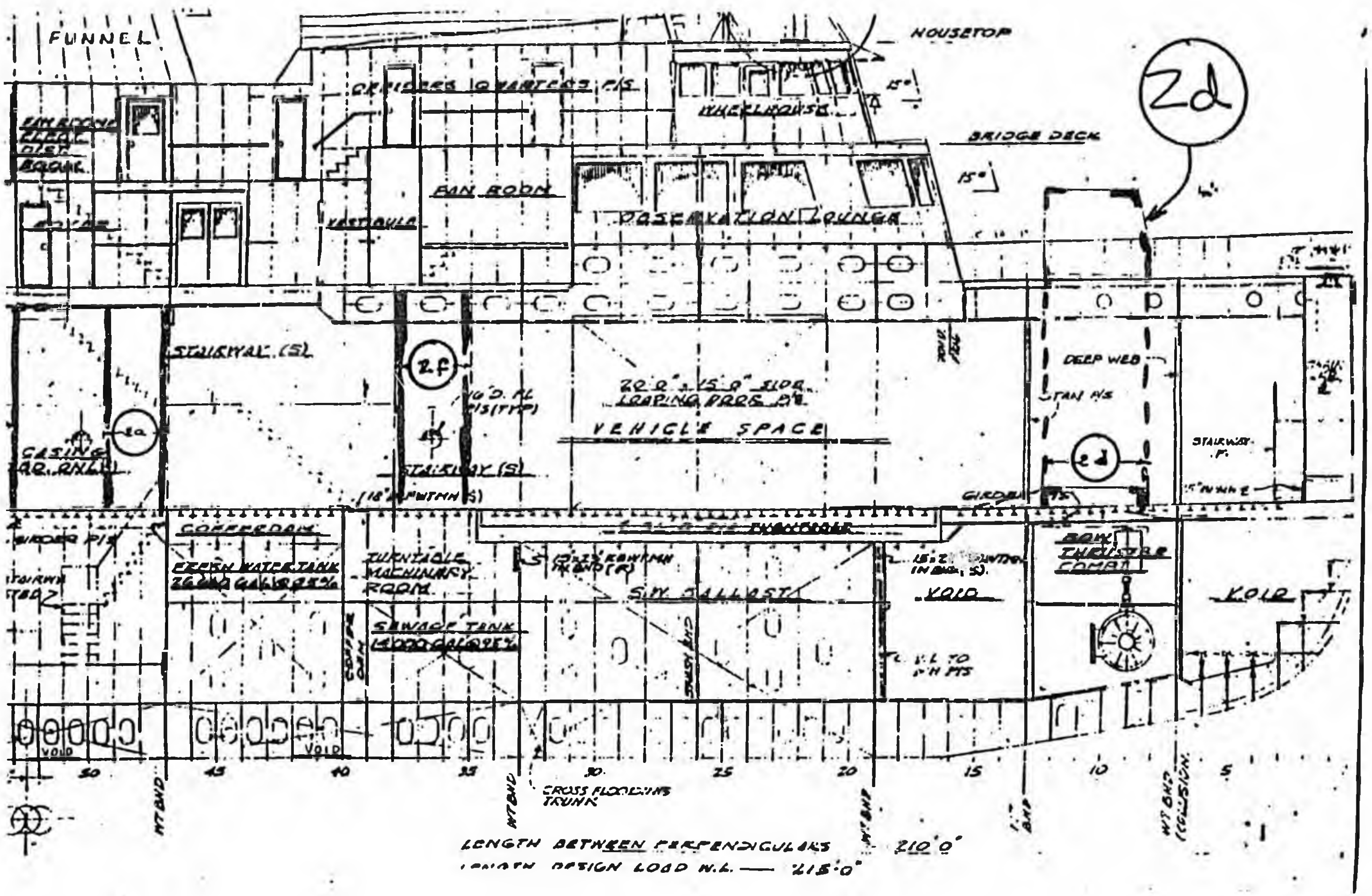
<u>Conclusion:</u>

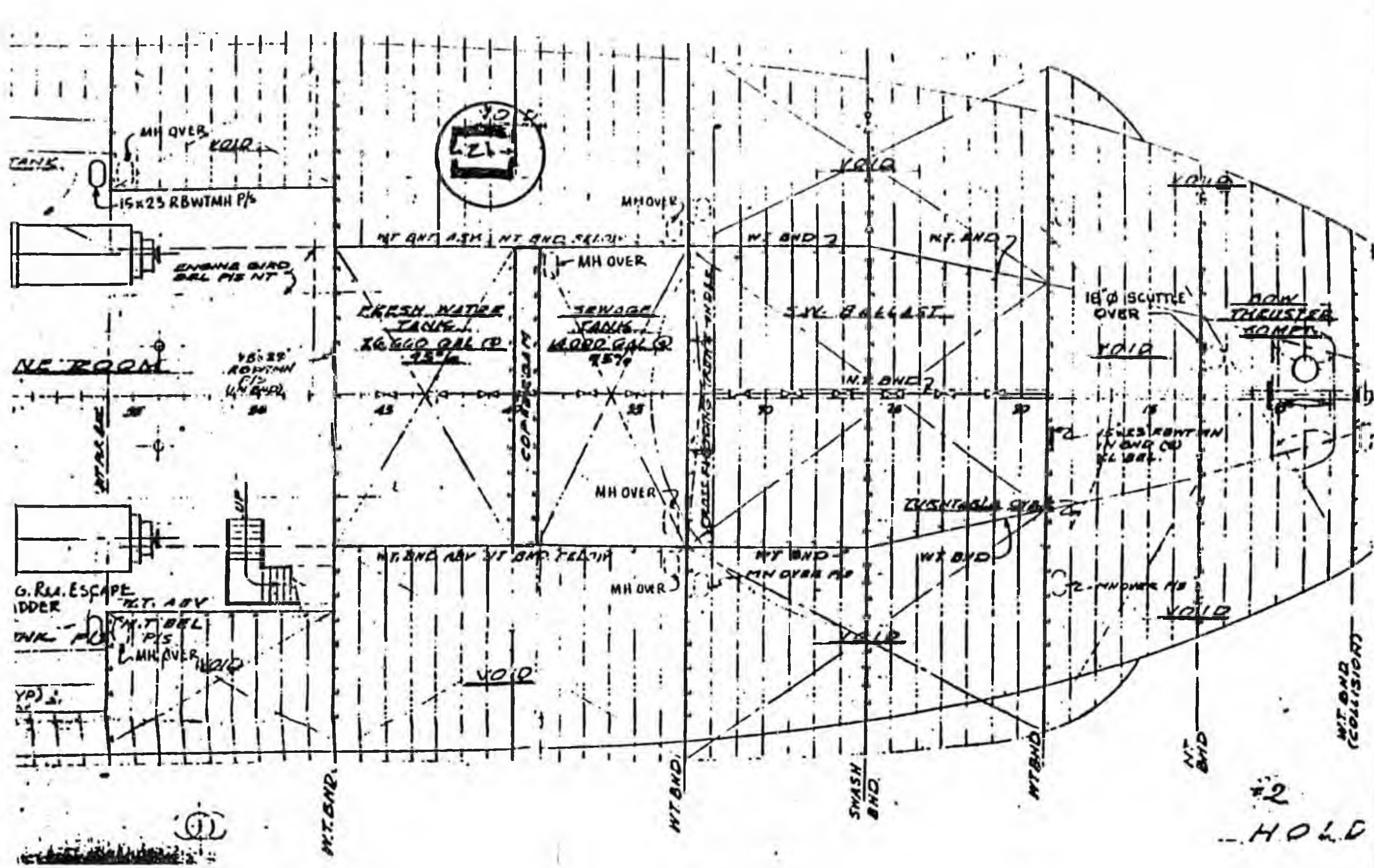
Location (c), which was also selected by the crew on their 1985 SMR, may be not by pure coincidence, appears to offer the best overall compromise. The access drawback when loading from the front door can be made acceptable.

Due to the size of the vessel and the simple two levels services contemplated this writer would seriously consider adaptation of a standard industrial personnel lift of the scissor type with electro-hydraulic power.

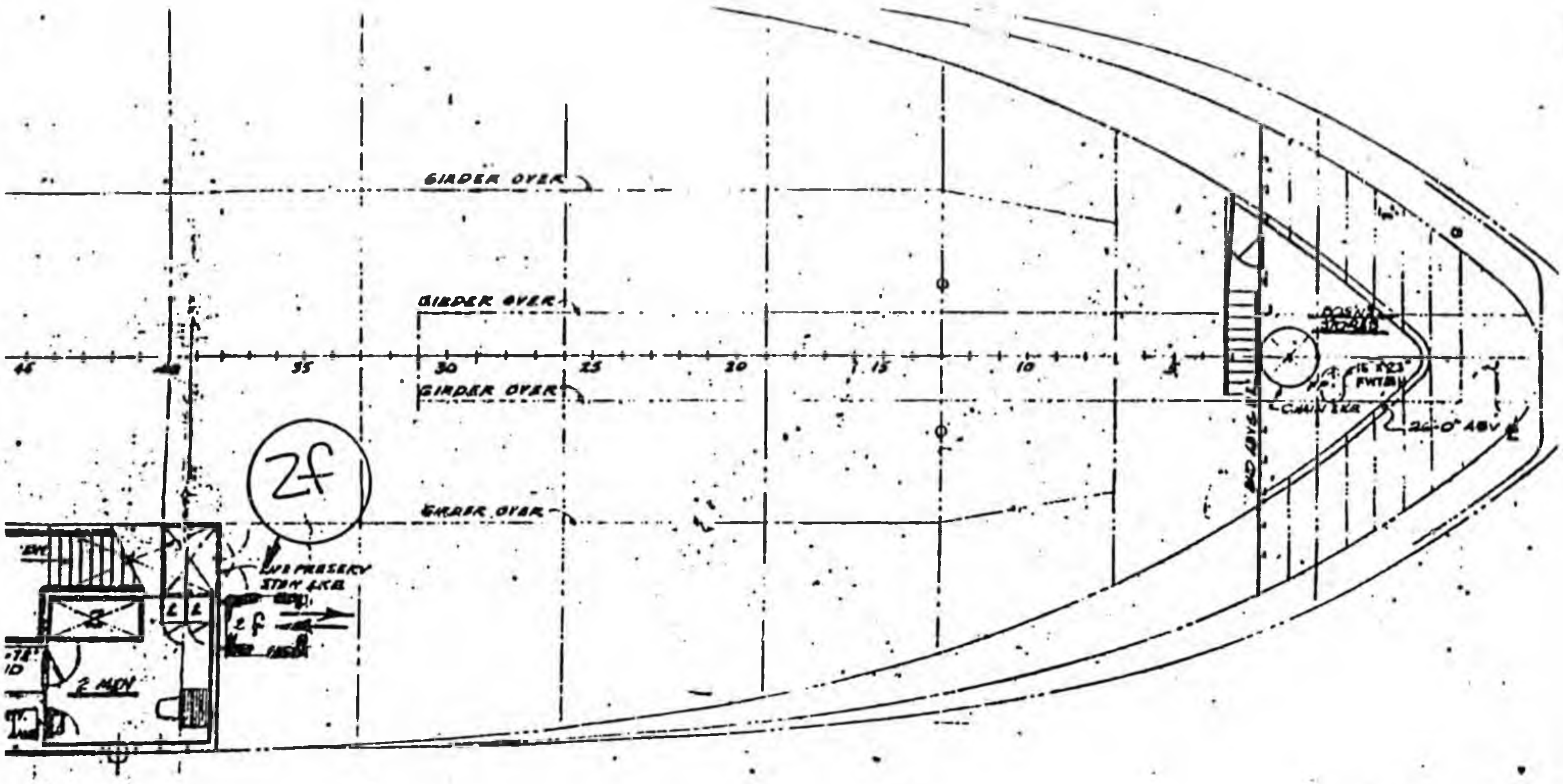
GD/mh

048 -- <u>DIRY2</u>


FUNNEL
HOUSETOP
2d
OFFICERS QUARTERS P/S
WHEELHOUSE
BRIDGE DECK
FAN ROOM
VESTIBULE
OBSERVATION LOUNGE
STAIRWAY (S)
2f
2a
CASING
VEHICLE SPACE
STAIRWAY (S)
DEEP WEB
STAIRWAY
GIRDER
COFFERDAM
FRESH WATER TANK
TURNTABLE MACHINERY ROOM
SEWAGE TANK
S.W. BALLAST
VOID
BOW THRUSTER COMPT
VOID
VOID
VOID
50
45
40
35
30
25
20
15
10
5
WT BHD
WT BHD
CROSS FLOODING TRUNK
WT BHD
BHD
WT BHD (COLLISION)
LENGTH BETWEEN PERPENDICULARS 210'0"
LENGTH DESIGN LOAD W.L. — 215'0"



MH OVER
VOID
TANK
15x23 RBWTMH P/S
MH OVER
W.T. BHD
ENGINE GIRD
FRESH WATER TANK
SEWAGE TANK
MH OVER
S.W. BALLAST
W.T. BHD
18 Ø SCUTTLE OVER
BOW THRUSTER COMPT.
VOID
NE ROOM
COFFERDAM
MH OVER
VOID
G. RM. ESCAPE LADDER
W.T. ABV
W.T. BEL P/S
MH OVER
VOID
VOID
VOID
W.T. BHD
W.T. BHD
W.T. BHD
MH OVER
MH OVER
VOID
W.T. BHD.
W.T. BHD.
SWASH BHD.
W.T. BHD
W.T. BHD
W.T. BHD (COLLISION)
#2
HOLD



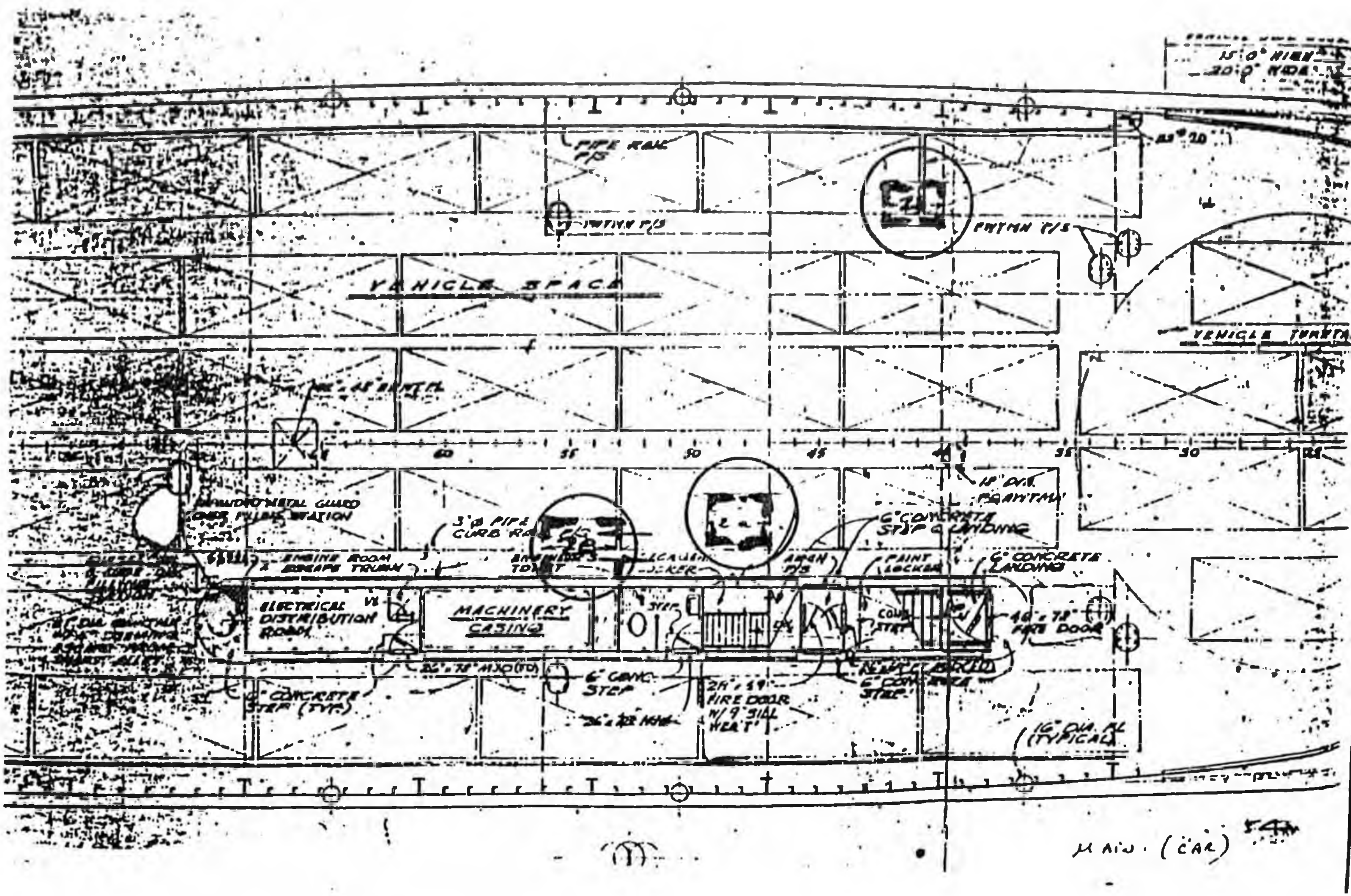
MENT PLAN

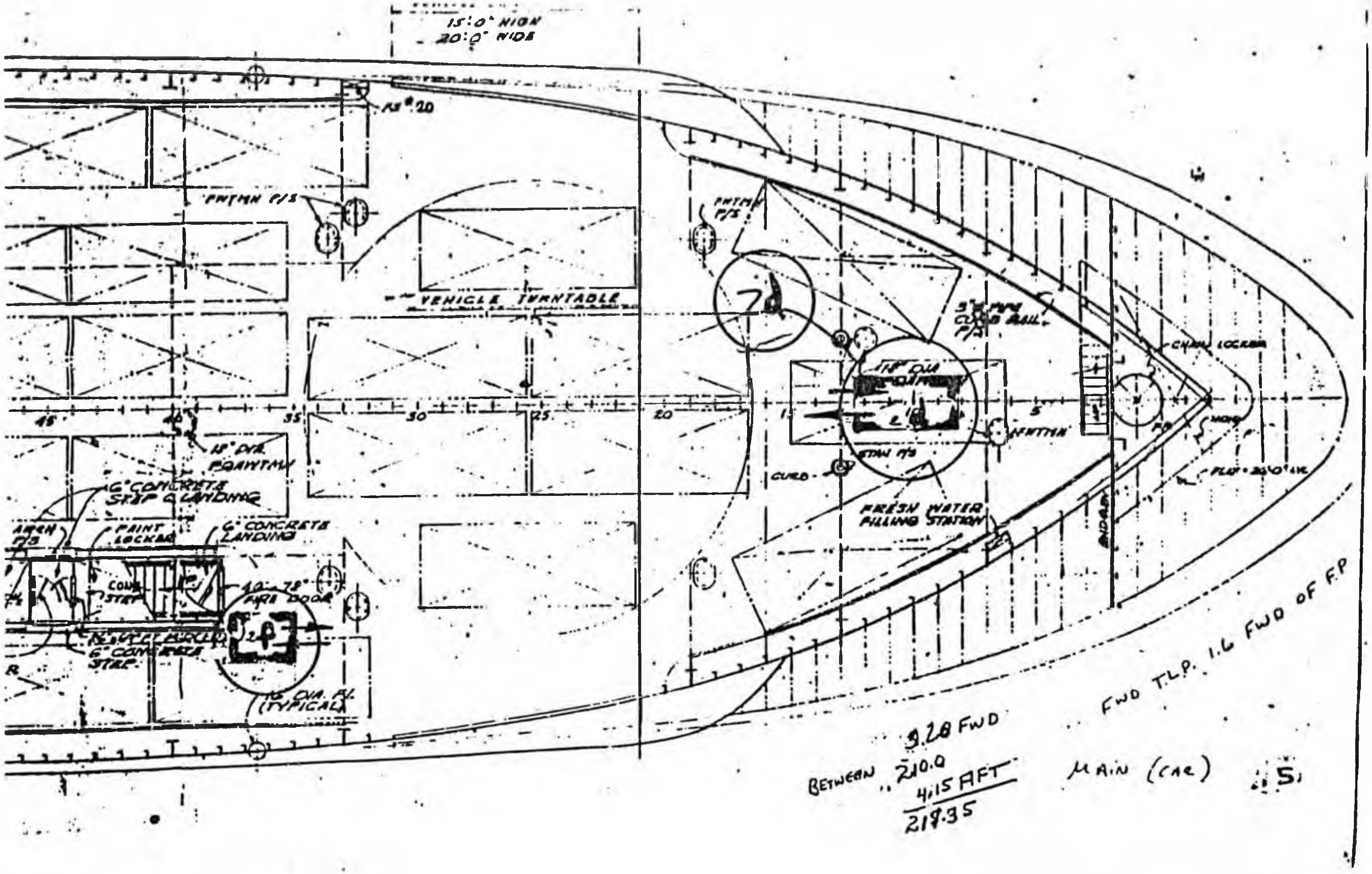
SCALE: 1/8" = 1'-0"

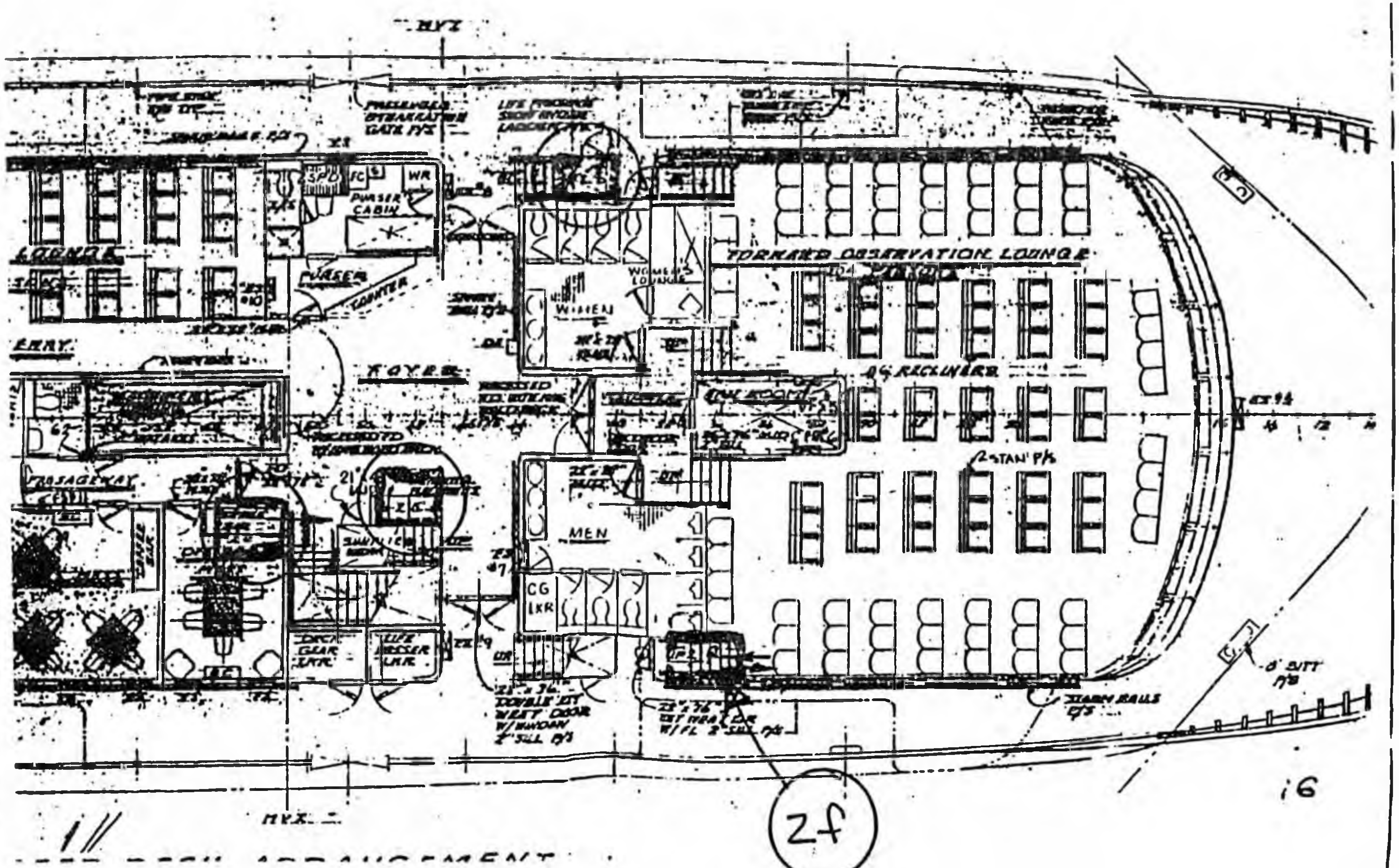
VEHICLE SIDE DOOR P/S

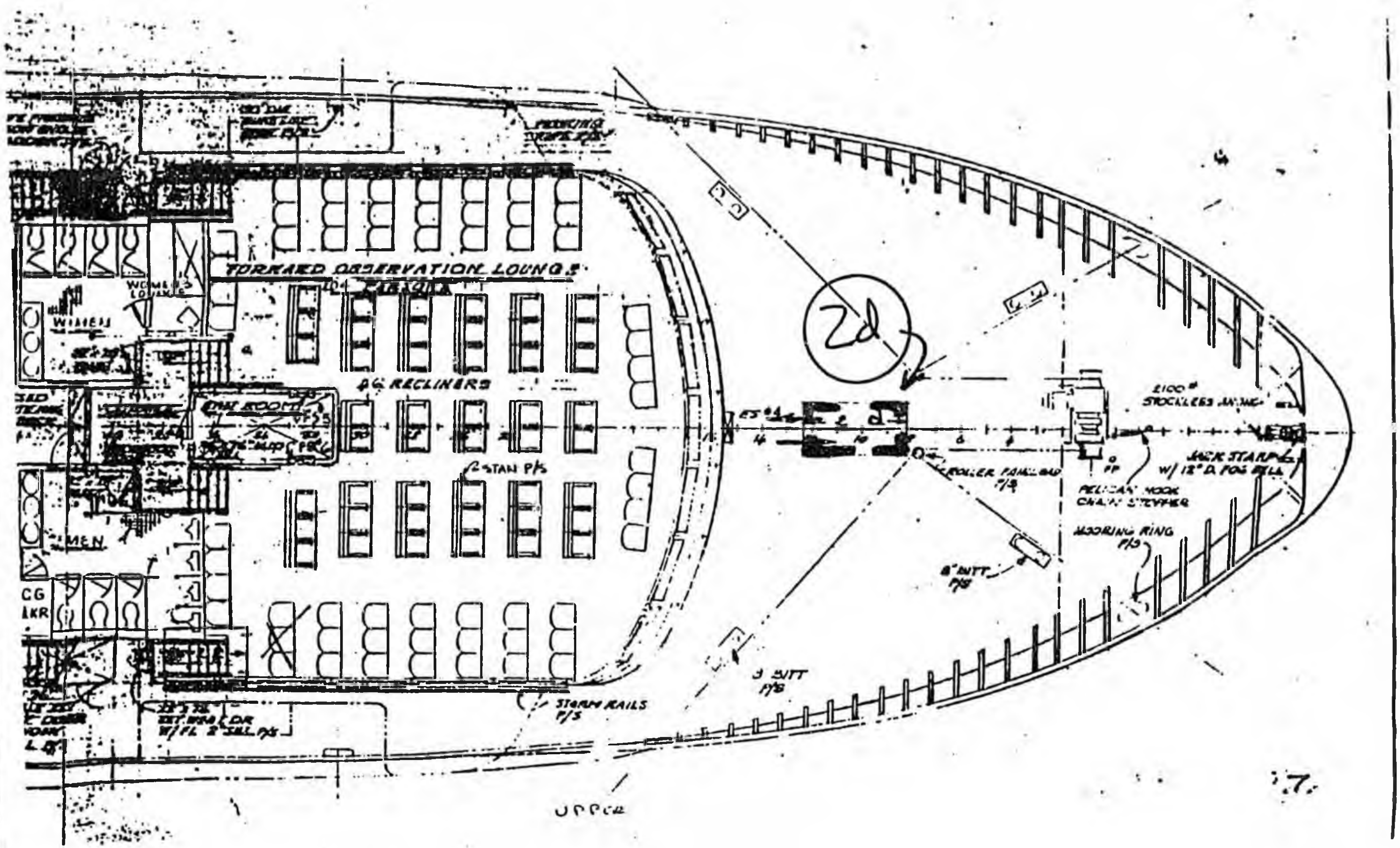
GALLEY

13

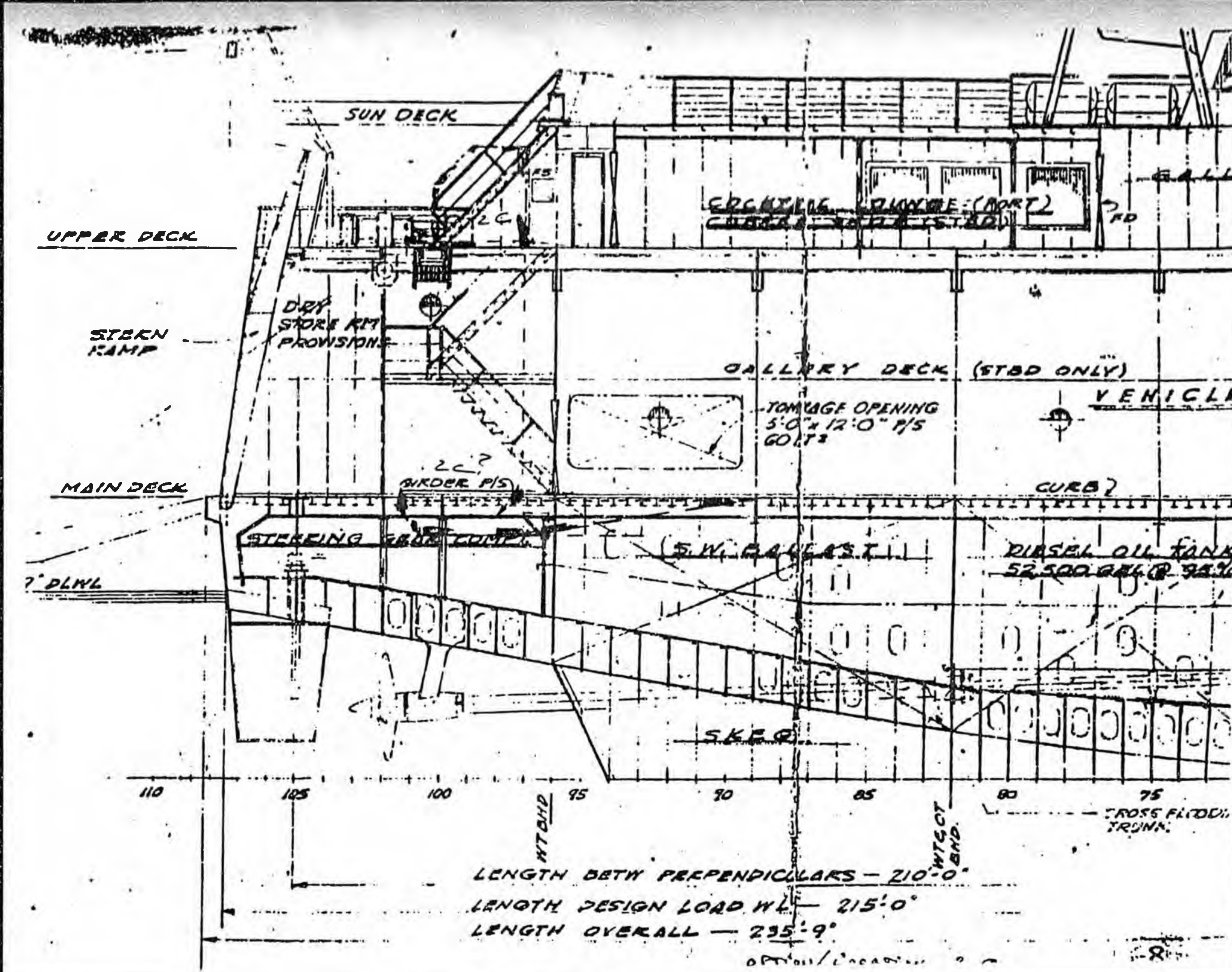

15'-0" HIGH
20'-0" WIDE
PIPE RAIL P/S
VEHICLE SPACE
VEHICLE TURNTABLE
ELECTRICAL DISTRIBUTION ROOM
MACHINERY CASING
ENGINE ROOM & ESCAPE TRUNK
3" Ø PIPE CURB RAIL
6" CONCRETE STEP & LANDING
PAINT LOCKER
6" CONCRETE LANDING
46" x 78" FIRE DOOR
6" CONC. STEP
CONCRETE STEP (TYP.)
26" x 78" MXD (TO)
FIRE DOOR
16" DIA. FL (TYPICAL)
60
55
50
45
40
35
30
MAIN. (CAR)
54


15'-0" HIGH
20'-0" WIDE
VEHICLE TURNTABLE
CHAIN LOCKER
FRESH WATER FILLING STATION
6" CONCRETE STEP & LANDING
PAINT LOCKER
6" CONCRETE LANDING
FIRE DOOR
(TYPICAL)
CURB
45
40
35
30
25
20
5
FWD T.L.P. 1.6 FWD OF F.P
3.20 FWD
BETWEEN 210.0
4.15 AFT
219.35
MAIN (CAR)
5

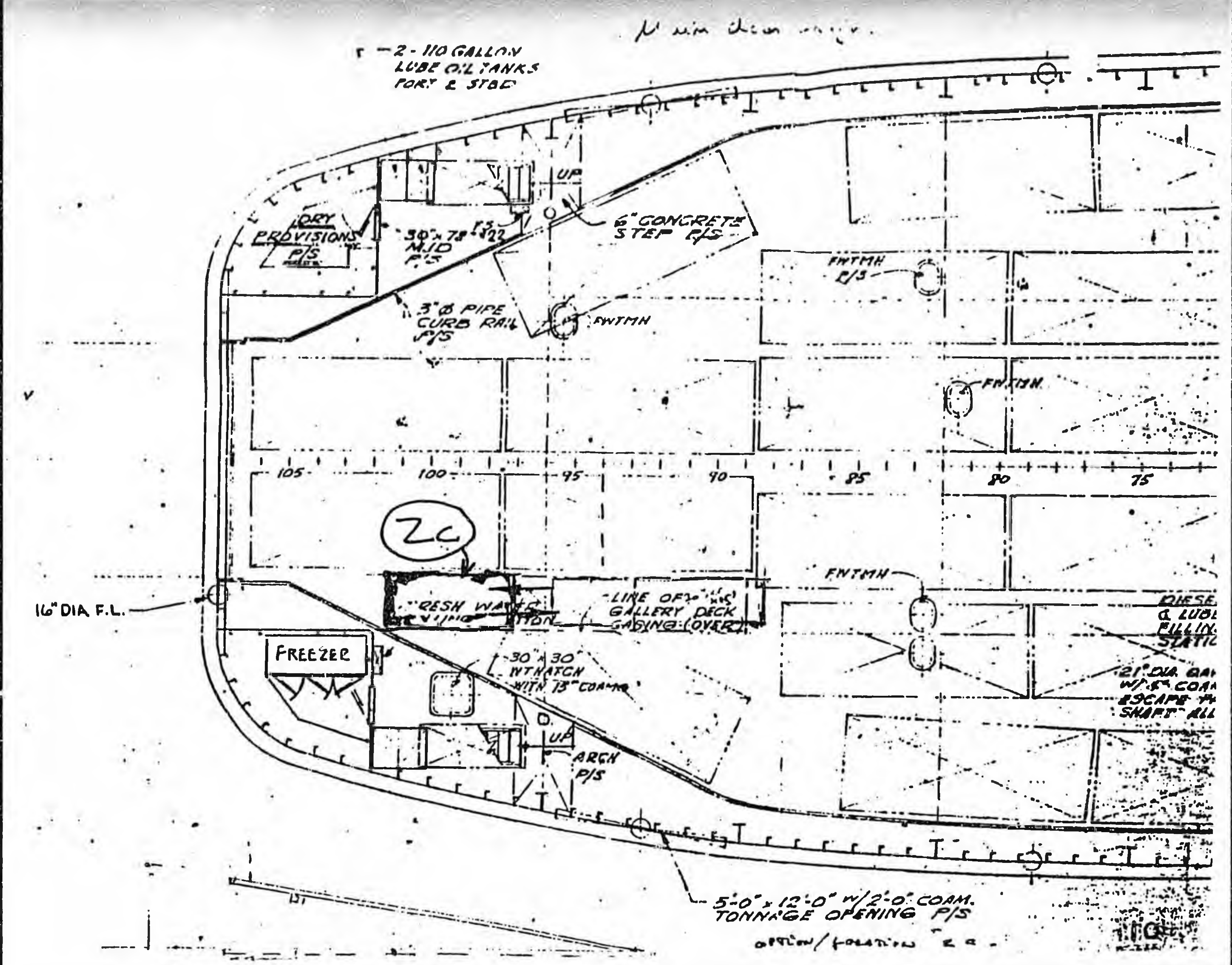

FORWARD OBSERVATION LOUNGE
96 RECLINERS
FOYER
PURSER CABIN
PURSER
COUNTER
WOMEN
WOMEN'S LOUNGE
MEN
CG LKR
DECK GEAR LKR
LIFE JACKET LKR
PASSAGEWAY
LOUNGE
2 STAN P/S
PASSENGER EMBARKATION GATE P/S
STARM RAILS P/S
8' DUTT P/S
WR
Z-f
16

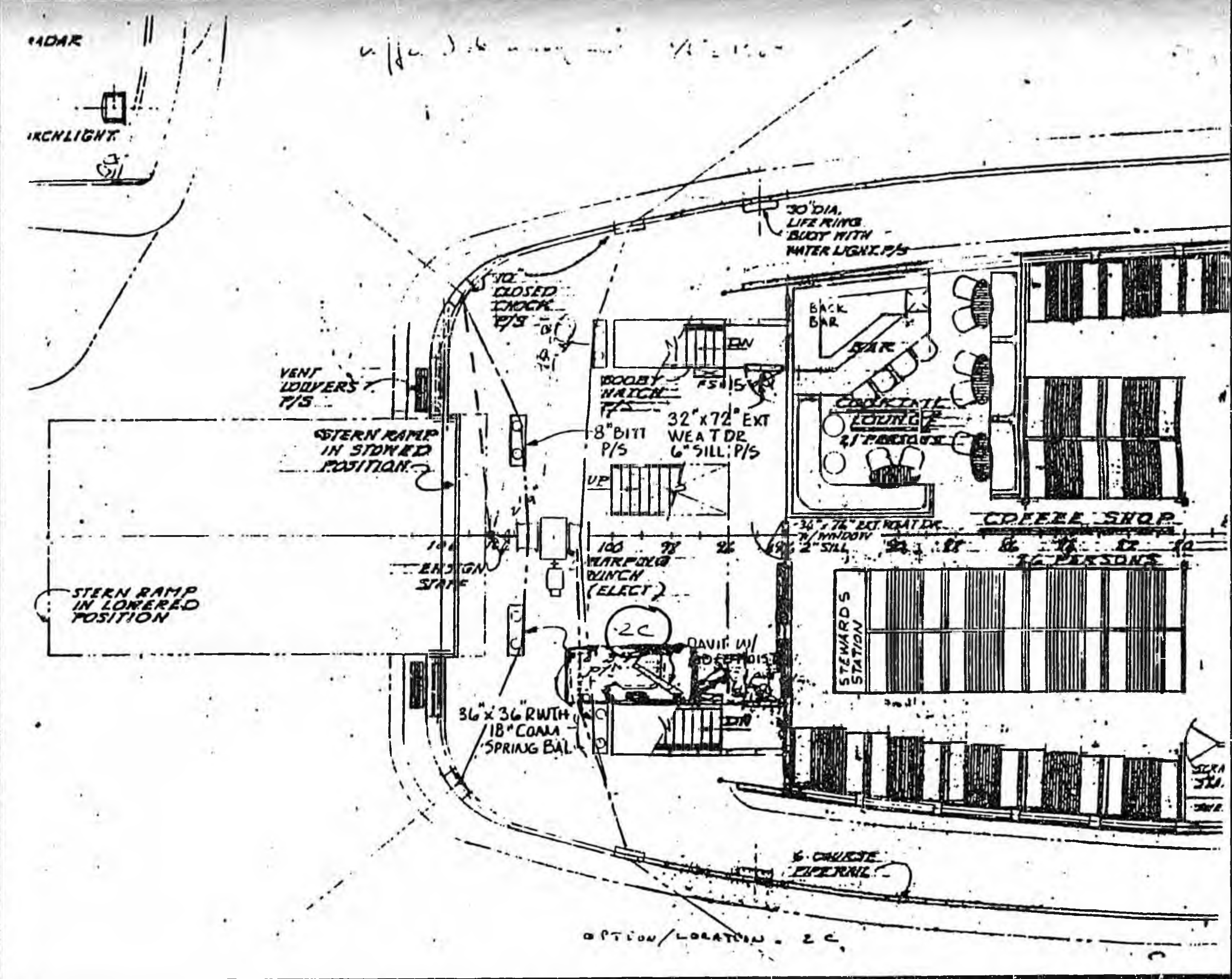

FORWARD OBSERVATION LOUNGE
46 RECLINERS
WOMEN'S LOUNGE
WOMEN
MEN
CG LKR
CHART ROOM
STORM RAILS P/S
2100# STOCKLESS ANCHOR
JACK STAFF W/ 12" D. FOG BELL
PELICAN HOOK CHAIN STOPPER
MOORING RING P/S
ROLLER FAIRLEAD P/S
8" BITT P/S
8" BITT P/S
CSTAN P/S
UPPER

17.



SUN DECK
UPPER DECK
STERN RAMP
DRY STORE RM PROVISIONS
GALLERY DECK (STBD ONLY)
TONNAGE OPENING 5'0" x 12'0" P/S
MAIN DECK
GIRDER P/S
CURB
STEERING GEAR COMPT
S.W. BALLAST
DIESEL OIL TANK
DLWL
SKEG
110
105
100
95
90
85
80
75
WTBHD
WTECT BHD
TRUNK
LENGTH BETW PERPENDICULARS — 210'-0"
LENGTH DESIGN LOAD WL — 215'-0"
LENGTH OVERALL — 235'-9"


2 - 110 GALLON
LUBE OIL TANKS
PORT & STBD
PROVISIONS
P/S
30" x 78" MID
P/S
UP
6" CONCRETE
STEP P/S
FWTMH
P/S
3" Ø PIPE
CURB RAIL
P/S
FWTMH
105
100
95
90
85
80
75
2C
16" DIA F.L.
FWTMH
LINE OF GALLERY DECK
CASING (OVER)
DIESEL
& LUBE
FILLING
STATION
FREEZER
30" x 30"
WT HATCH
WITH 15" COAMING
21" DIA
ESCAPE
SHAFT
UP
ARCH
P/S
5'-0" x 12'-0" W/2'-0" COAM.
TONNAGE OPENING P/S



RADAR
SEARCHLIGHT
30" DIA. LIFE RING BUOY WITH WATER LIGHT P/S
10" CLOSED CHOCK P/S
VENT LOUVERS P/S
STERN RAMP IN STOWED POSITION
STERN RAMP IN LOWERED POSITION
BACK BAR
BAR
BOOBY HATCH P/S
DN
UP
8" BITT P/S
32" x 72" EXT WEA T DR 6" SILL P/S
COCKTAIL LOUNGE 21 PERSONS
COFFEE SHOP
36 PERSONS
ENSIGN STAFF
HARPOON WINCH (ELECT)
2C
DAVIT W/ HOIST
STEWARDS STATION
36" x 36" RWTH 18" COAM SPRING BAL
6 COURSE PIPERAIL
OPTION/LOCATION - 2C

House Transportation Committee

DATE: 4/23/91

PLACE: Room 17

SUBJECT OF MEETING:
HCR 26 – Relating to the state transportation plan
HB 132 – Approp. for handicapped access

NAME	REPRESENTING	BUSINESS/PERSONAL MAILING ADDRESS	ZIP	(H) PHONE	(W) PHONE	DO YOU WANT TO TESTIFY?		WHAT SUBJECT/ WHICH BILL?
Helen Pootoogooluk	Rep. MacLean	Box V Juneau AK	99811	4	465-3862	Y	N – if	Rep. MacLean can't HCR 26
Sandor Bodey		Box V Juneau, AK	99811		465-3785	(Y)	N	SCR 22
Jerry Mackie		Box V Juneau AK 99811	99811		465-4925	(Y)	N	HB 132
Rody Simmons	DOT/PF	Box Z Juneau AK 99811	99811		3900	(Y)	N	HCR 26
Tim Ayers	AMHS	Box Z Juneau AK	99811		3950	(Y)	N	HB 132
						Y	N	
						Y	N	
						Y	N	
						Y	N	
						Y	N	
						Y	N	

Page ___ of ___

HB
154

FISCAL NOTE

STATE OF ALASKA
1992 LEGISLATIVE SESSION

BILL NO. HB 154

Revision Date:
Department Affected: Public Safety
Title: An Act requiring the use of headlights when driving a motor vehicle.
BRU: Alaska State Troopers
Component: Detachments
Sponsor: Representative Navarre
Requestor: House Transportation
COMPONENT SERIAL NO. 7 9 9

EXPENDITURES/REVENUES: (Thousands of Dollars) (inflation not included)

OPERATING	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-

CAPITAL	-0-	-0-	-0-	-0-	-0-	-0-

REVENUE FUND SOURCE:	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER FUND SOURCE:						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

Estimate of current year impact: None

ANALYSIS: (Attach a separate page if necessary.)

No fiscal impact is anticipated.

1/21/92

Prepared By: Gayle A. Horetski
Phone: 465-4322
Division: Commissioner's Office
Date: 01/20/92
Approved by Commissioner: Richard L. Burton
Agency: Department of Public Safety
Date: 01/20/92

Distribution (by preparer): Leg. Fin., Legislative Sponsor, Requestor, OMB/DBR, Gov. Legis. Ofc., & Impacted Agency(ies).

Rev 10/7/91

STATE OF ALASKA
1991 LEGISLATIVE SESSION

BILL NUMBER: HB 154

FISCAL NOTE

Revision Date: 2/22/91

Title: "An Act Requiring the use of headlights when driving a motor vehicle."

Sponsor: Navarre, Kohonen

Requestor:

Department Affected: DOT&PF

BRU: Maintenance & Operations

Component: Northern, Central, & S. E.

Component Serial Number: 564, 584, 587, 590, & 603

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY92	FY93	FY94	FY95	FY96	FY97
PERSONAL SERVICES	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0
CONTRACTUAL	13.5	3.0	3.0	3.0	3.0	3.0
SUPPLIES	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
LAND & STRUCTURES	0	0	0	0	0	0
GRANTS, CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL OPERATING:	13.5	3.0	3.0	3.0	3.0	3.0

CAPITAL	0	0	0	0	0	0

REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUNDS	13.5	3.0	3.0	3.0	3.0	3.0
FEDERAL FUNDS	0	0	0	0	0	0
OTHER	0	0	0	0	0	0
TOTAL FUNDING:	13.5	3.0	3.0	3.0	3.0	3.0

POSITIONS

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

Estimate of current year impact:

ANALYSIS: (Attach a separate page if necessary)

See Attachment.

Prepared by: Jeffery C. Ottesen, Director   Phone: 465-2951

Division: Engineering and Operations Standards   Date: Feb 27, 1991

Approved by Commissioner: [signature] Frank G. Turpin   Phone: 465-3900

Agency: Department of Transportation and Public Facilities   Date: Feb 27, 1991

Distribution By Preparer: Legislative Finance, Legislative Sponsor, Requestor, OMB, Impacted Agency(ies).

ANALYSIS (cont. from page 1):

Mandatory Lights Signs

Locations:		No.
1)	Border Xings	5
2)	Towns over 1000 (airports)	22
3)	Marine Hwy Ports	27
	Total	54

Sign first cost:
Area 5 sq ft
cost $50/sq ft
Total = $50 x 5 x 54 = $13,500

Maintenance:
long term Main 20% x $13,500
annual cost $2,700 say $3,000

FISCAL NOTE

STATE OF ALASKA
1991 LEGISLATIVE SESSION

BILL NO. HB 154

Revision Date:
Title: An Act requiring the use of headlights when driving a motor vehicle.
Sponsor: Representative Navarre
Requestor: House Transportation

Department Affected: Public Safety
BRU: Alaska State Troopers
Component: Detachments

COMPONENT SERIAL NO. | | 7 | 9 | 9 |

EXPENDITURES/REVENUES: (Thousands of Dollars) (Inflation not Included)

OPERATING	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -

CAPITAL	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -

REVENUE	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER/PROG RCPT						
TOTAL	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

Estimate of current year impact None.

ANALYSIS: (Attach a separate page if necessary)

No fiscal impact is anticipated.

Prepared by: Gayle A. Horetski
Phone: 465-4322
Division: Commissioner's Office
Date: 3/08/91
Approved by Commissioner: Richard L. Burton
Agency: Department of Public Safety
Date: 3/08/91

Distribution (by preparer): Legislative Finance, Legislative Sponsor, Requestor, OMB, & Impacted Agency(ies).

Rev 10/90 CDVSA - 87

ALASKA STATE LEGISLATURE
REPRESENTATIVE MIKE NAVARRE

Co-Chair
House Finance Committee
P.O. Box V
Juneau, Alaska 99811
(907) 465-3779

March 11, 1991

MEMORANDUM

TO: Representative Richard Foster, Chairman House Transportation

FROM: Representative Mike Navarre *Mike*

SUBJECT: House Bill 154, An Act requiring the use of headlights when driving a motor vehicle.

• •

PURPOSE OF HB 154

Safety is the main reason this bill was introduced. Statistics show a definite reduction in accidents when motorists drive with their headlights on at all times.

Studies of accident causes have shown that nearly half of all road accidents are caused by driver recognition problems including both perception and comprehension (Transport Canada Study January 1989).

BENEFITS OF HB 154

First and foremost is the reduction in fatalities and injuries.

Lowering the rate of vehicle vs. pedestrian accidents. After introducing similar law is Sweden, pedestrian and cyclist accidents decreased more than collisions between vehicles.

Transport Canada's studies indicate that there would be a 10 to 20 percent reduction in daytime multiple vehicle collisions (excluding rear-enders).

If you would like more backup material on this issue please contact my office.

DISTRICT 5
34824 K-Beach Road • Soldotna, Alaska 99669 • (907) 262-7842

Department of Transportation and Public Facilities

POSITION PAPER

BILL NO: CSHB 154

APPROVED:

TITLE: "An Act requiring the use of headlights when driving a motor vehicle."

DATE: 3-11-91

The Department supports the bill.

There is only one section in the committee substitute bill and it requires a person driving a motor vehicle to have the headlights illuminated.

The purpose of the bill is to increase the visibility of vehicular traffic especially during period of poor lighting conditions (which can occur during the long twilight conditions induce by the high latitudes in Alaska). This increased visibility should reduce the accidents rate with minimal cost to the traveling public.

The Department of Transportation and Public Facilities, as required by the Alaska Traffic Manual, would be responsible for the required signing of the highways.

It would cost approximately $28,500 to install and maintain the signs for six years.

STATE OF ALASKA

WALTER J. HICKEL, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

ENGINEERING & OPERATIONS STANDARDS

P. O. BOX Z
JUNEAU, ALASKA 99811-2500
PHONE (907) 465-2951
Fax: (907) 465-2460

April 3, 1991

The Honorable Richard Foster
Alaska State Legislature
Chairman, House Transportation Committee
P. O. Box V
Juneau, AK 99811

Dear Representative Foster:

As requested at the hearing on HB 154 held on March 12, I have attached a series of literature abstracts taken from the Dialog database of articles published on transportation topics. They pertain to the use of headlights in daytime or daytime running lights (DRL) as they are typically referred to. As was indicated by Representative Navarre's staff person and my own testimony, the evidence of daytime headlight use being beneficial in lowering accident rates is quite strong. Canada, which in 1990 mandated DRL, is estimating an overall accident reduction of 20% while the reports from the Netherlands suggest a more modest 5-12% reduction.

In the most recent year of complete statistics (1989) Alaska experienced 79 accidents with fatal injuries and 3,622 accidents with non-fatal injuries. Thus, even the most conservative accident reduction rate cited in the literature would have very positive effects in public safety, reduced medical costs and lowered insurance rates.

I trust this information is useful in your consideration of this bill.

Sincerely,

Jeffery C. Ottesen
Director

cc: Representative Mike Navarre
Katy McHugh, Legislative Liaison
Gayle Horetski, Deputy Commissioner, Dept. of Public Safety

25A-T34LH

SEE AND BE SEEN DRIVING

Spain, Robert F.; kim, Y. George; Fisher , Russell V.
General Motors Res. Labs.

Driver p19-24 (Jul 1975) 1975 Monograph 8refs
REPORT NO: HS-017 090

The physiological limitations imposed on our abilities to perceive, recognize, decide, react, and evade an accident are discussed. The four leading factors in accidents are considered to be improper lookout (particularly at intersections), excessive speed, inattention, and improper evasive action. A chart is provided which illustrates the estimated human-machine, time-distance relationships of two autos traveling on a head-on collision course of 55 mph (or at a combined closing speed of 110 mph). An elapsed time of 2.05 seconds is the bare minimum available under perfect conditions, for both men and machines, for either driver to avoid collision. Perceptual lag, the estimated one-tenth of a second for eye-to-brain communication, is considered. Recognition of what the driver sees requires another half second. The decision time, determined by the experience level of the driver, is the next crucial factor. Under ideal conditions it can vary from .15 to .85 seconds but it can take as long as several seconds. Following his decision, the driver then has a minimum of .3 seconds to physically react. This, however, could take several seconds, depending on experience. The time needed for the driver's vehicle to mechanically respond to his inputs to the controls and to successfully change the collision course is the final factor. The estimated minimum time for this is one second. It is concluded that the human demands of this type of driving situation may exceed a driver's abilities, that collisions will continue to be a constant threat, and that the only way to remedy these problems is to recognize the limitations of driver and vehicle. The following factors can influence a driver's ability to avoid an accident : headlight maintenance; the size of the driver's nose; a panoramic rear-view mirror; an anti-glare rear-view mirror; sunglasses of high optical quality; rest breaks on long trips; windshield wiper maintenance; a reminder of safe speed affixed to the speedometer; and expansive window areas offering minimum obstruction and optimum field of view. Presented at Automotive Engineering Congress, Detroit, Mich., 12-16 Jan 1970.

DAYTIME RUNNING LIGHTS

Schreuder, DA
Institute for Road Safety Research SWOV P.O. Box 170 2260 AD Leidschendam Netherlands

1988 66p Swedish
AVAILABLE FROM: National Technical Information Service 5285 Port Royal Road Springfield Virginia 22161

Daytime running lights and their effect on traffic safety were studied in a literature review in 1985. This research led to a further study of the use of dipped headlights. The main conclusion was that the introduction of daytime dipped headlight use in the Netherlands should reduce the number of t raffic accident victims in such a way that the reduction was bigger than the costs. After many discussions on further resarch, and on the results obtained in other countries, the use of daytime running lights is now strongly recommended. It is emphasized that a light on the rear end of the vehicle is also desirable. Available outside the North American Continent from Institute for Road Safety Research SWOW, P.O. Box 170, 2260 AD Leidschendam, The Netherlands

ROAD SAFETY AND DAYTIME RUNNING LIGHTS: A CONCISE OVERVIEW OF THE EVIDENCE

Koornstra, MJ
Institute for Road Safety Research SWOV P.O. Box 170 2260 AD Leidschendam Netherlands

1989 17p
AVAILABLE FROM: National Technical Information Service 5285 Port Royal Road Springfield Virginia 22161

Studies of road accidents in Japan, Canada and the Federal Republic of Germany show that the human perception errors and perception related to misjudgements form a main causal factor in road accidents, ranging from 20% to 50%. Types of conflicts for which daytime running lights (DRL) may be beneficial, such as overtaking collisions and crossing collisions are over represented in daylight accidents. A reduction of accidents would occur if DRL could match the selective perception of traffic in darkness. Estimations of distance to other road users are shorter if DRL are used, while visibility is only partially enhanced. These perceptual results point to an explanation of the effect of DRL as based on the enhancement of timely perceptual selection and judgement, instead of based on the enhancement of mere visibility only. The expected reduction of the total number of accidents is at least 5%. The measure has surely a very good cost-benefit ratio: total costs will increase by less than 30 Dutch guilders per car per year.

EVALUATION OF GLARE FROM DAYTIME RUNNING LIGHTS

Kirkpatrick, M; Marshall, RK
Carlow Associates, Inc. 8315 Lee Highway, Suite 410 Fairfax Virginia 22031

Oct 1989 91p
AVAILABLE FROM: National Technical Information Service 5285 Port Royal Road Springfield Virginia 22161

Experiments were conducted to determine effects of Daytime Running Light (DRL) intensity on driver discomfort glare when using internal and side rearview mirrors. DRL lamps were placed behind a test vehicle as if mounted on a following vehicle. Discomfort glare was evaluated as a function of lamp intensity, vehicle/lamp geometry, lamp-to-lamp distance, and driver age. Field tests and experiments have suggested that the use of DRL on vehicles may have potential for reduction of daytime collision likelihood and severity. While enhancement of vehicle conspicuity in daylight appears to increase with lamp intensity, questions have arisen involving possible counter-productive effects of high DRL intensity such as production of discomfort glare under dawn/dusk or overcast daytime illumination levels. Discomfort glare was found to be largely independent of lamp-to-mirror distance over the range studied. The finding implied that DRL lamp luminance in candela per unit area and DRL lamp area as well as intensity should be considered in recommending lamp design characteristics to limit discomfort glare. The data did not support the hypothesis that elderly drivers would experience more severe discomfort glare for a given lamp output than would younger drivers.

ROAD SAFETY AND DAYTIME RUNNING LIGHTS

Koornstra, MJ
Institute for Road Safety Research SWOV P.O. Box 170 2260 AD Leidschendam Netherlands

1989 14p 15 Ref.
AVAILABLE FROM: Institute for Road Safety Research SWOV P.O. Box 170 2260 AD Leidschendam Netherlands

Studies of road accidents in Japan, Canada and the Federal republic of Germany show that human perception errors and perception related misjudgements form a main causal factor in road accidents, ranging from 20% to 50%. Types of conflicts for which daytime running lights (drl) may be beneficial, such as overtaking collisions and crossing collisions are over represented in daylight accidents. A reduction of accidents would occur if drl could match the selective perception of traffic in darkness. Estimations of distance to other road users are shorter if drl are used, while visibility is only partially enhanced. These perceptual results point to an explanation of the effect of drl as based on the enhancement of timely perceptual selection and judgement, instead of based on the enhancement of mere visibility only. It is concluded from different studies that in Europe, and in particular in the Netherlands, an obligation for drl will most likely reduce the number of daytime multiple accidents by about 25% and will surely reduce accidents by more than 10%. Since in the Netherlands the number of these accidents is about half of the total number of accidents, the expected reduction of the total number of accidents is at least 5%. The measure has surely a very good cost-benefit ratio: total costs will increase by less than 30 Dutch guilders per car per year.

DAYTIME LIGHTS - 20% FEWER ACCIDENTS

Finn, E
Transport Canada
Transpo VOL. 12 NO. 1 1989 pp 18-19
AVAILABLE FROM: Transport Canada Public Affairs Branch Ottawa Ontario K1A 0N5 Canada

The Canadian Motor Vehicle Safety Regulations require that all cars, buses, and trucks sold in Canada will be equipped with automatic daytime running light (DRL) systems starting with the 1990 models. This was the result of extensive research by Transport Canada and successful experiments with such lights in Finland, Sweden and Norway. These lights will be activated whenever a vehicle is operated without its regular headlights. One study found 20% fewer accidents involving vehicles fitted with automated daytime lights. This means 120 lives will be saved annually, 11,000 fewer injuries, and a $200 million savings in medical costs. Studies have shown that drivers underestimate the speed of an approaching car that is unlit. DRLs will also be a boon for pedestrians, cyclists and animals. The Yukon jurisdiction in Canada has a law (1987) that compels all cars to have their lights on at all times when being driven. The use of low-beam headlights during the day, whether voluntary or compulsory, is an important adjunct to the new federal DRL regulation. It is hoped that non-owners of 1990 model cars will retrofit their older vehicles with DRL kits.

ANALYSIS OF A PROPOSED REGULATION REQUIRING DAYTIME RUNNING LIGHTS FOR MOTOR VEHICLES

Lawson, JJ
TRANSPORT CANADA ROAD SAFETY AND MOTOR VEHICLE REG Ottawa Ontario Canada;
DIRECTORATE
Jun 1986 VIII+135P

A limited form of social cost-benefit analysis has been performed on the various possible daytime running light (drl) devices under consideration for implementation. These options include reduced intensity headlamps, increased intensity parking lamps, modified turn signals, and separate special-purpose running lamps. Costs are estimated in terms of manufacturing, maintenance and additional operating costs. Estimates of benefits are based on the effectiveness of the daytime running lights in reducing accidents, using data collected in other countries, notably Sweden, where drl devices have been implemented. The total costs, benefits and net benefits of the regulation are projected for the future fleet of vehicles in Canada to the year 2000. The estimates indicate that reduced intensity low-beams would not produce a net benefit, except for heavy trucks, while the other drl systems would produce total net benefits over this period of between $500 million for special purpose drl devices up to $750 million for reduced intensity high-beam lights.

EVALUATION OF AUTOMATIC DAYTIME DRIVING LIGHT CONTROL DEVICES

George, D
Alberta Transportation 89th Avenue and 114th Street Edmonton Alberta Canada

Oct 1986 4p 8 Fig.
AVAILABLE FROM: Alberta Transportation 89th Avenue and 114th Street Edmonton Alberta Canada

Based on the reported success of automatic headlight devices in the province of Saskatchewan, Alberta transportation is currently testing the feasibility of these devices for use on government vehicles in this province. This project has been initiated to evaluate two different products available for automatically operating vehicle lights. It will also assess driver attitudes as an indication of the potential successfulness of a daytime driving light policy. From the responses received, the indication is that the devices are reasonably easy to install and operate, and user acceptance is high. However, the devices are fairly costly and since the time of this study more products have become available on the market. If daytime driving light policy is recommended in the future (including the use of an automatic device), consideration should be given to alternative products available at a reasonable cost. (Author/TRRL)

STUDY OF DAYTIME RUNNING LIGHT DESIGN FACTORS

Kirkpatrick, M; Baker, CC; Heasly, CC
Carlow Associates 8315 Lee Highway Fairfax Virginia 22031

Aug 1987 103p
REPORT NO: DOT-HS-807 193
SUBFILE: HRIS; NTIS
AVAILABLE FROM: National Technical Information Service 5285 Port Royal Road Springfield Virginia 22161

Prior research has suggested that use of daytime running lights (DRL) on operating vehicles can reduce the frequency and severity of collisions. Possible DRL implementations include high-beam headlamps (with reduced intensity), low-beam headlamps, turn signals, parking lamps and dedicated DRL lamps. Questions have, therefore, arisen regarding the impact on DRL effectiveness of a number of lamp design features and parameters. Research issues involve the effects on vehicle conspicuity under daytime illumination but also potential negative consequences of DRL such as masking of adjacent turn signals and glare under dawn/dusk conditions. The objective of the effort reported here was to obtain data on perceptual effects of DRL intensity, lamp area, color, number of lamps and lamp/background contrast in the above areas. Three experiments were performed to investigate human performance as functions of these design parameters in tasks involving peripheral vehicle detection, turn signal detection and rearview mirror discomfort glare produced by DRL.

SURVEY OF VEHICLE LIGHT USE IN DAYTIME

Ng, W
Transport Canada Transport Canada Building, Floor 27C, Place de Ville
Ottawa Ontario K1A 0N5 Canada

87p 11 Fig. 18 Tab. 11 Ref. 3 App.
REPORT NO: TP 5770E; HS-038 369
AVAILABLE FROM: Transport Canada Transport Canada Building, Floor 27C,
Place de Ville Ottawa Ontario K1A 0N5 Canada

To provide baseline information for assessing the effectiveness of daytime running lights (DRL), national surveys of daytime use of vehicle lights was conducted in 3 seasons (fall, winter, summer of 1981-1982). Surveys were made at 200 road sites across Canada selected using a multi-stage probability sample design. Observations were made for 2 one-hour periods selected to cover the diurnal spectrum approximately from a half-hour before sunrise to a half-hour after sunset. Information was recorded regarding vehicle type, use of front lighting, headlamp configuration, as well as a number of relevant environmental factors. A photographic light meter was used to measure the ambient illumination. Analysis of survey data showed that weather was the most influential factor affecting the use of vehicle lights. The ambient illumination was found to show a fairly logarithmic relationship with DRL usage which increased rapidly as the ambient illumination level fell below 15,000 areas. Overall, the usage was 14.8% in the fall, 19.6% in the winter and 8.0% in the summer. The annual DRL usage in Canada was estimated to be 13.6%

PHOTOMETRIC TESTS OF DAYTIME RUNNING LIGHTS

Kirkpatrick, M; Heasly, CC; Bathurst, JR
Carlow Associates Incorporated 8315 Lee Highway, Suite 410 Fairfax Virginia 22031; National Highway Traffic Safety Administration Crash Avoidance Research Division Washington D.C. 20590

Feb 1984 Final Rpt. 69p Figs. Tabs. 9 Ref. 3 App.
REPORT NO: HS-806 620
AVAILABLE FROM: National Technical Information Service 5285 Port Royal Road Springfield Virginia 22161

Current and prior field test data suggest that use of daytime running lights on operating vehicles can reduce the frequency and severity of collisions. Currently available data do not support the establishment of optimal or required daytime running light output and light distribution parameters. Daytime running light configurations which have been used in field tests range in output from low beam headlights to vehicle parking lights. Considerations of cost and driver visual response suggest that an optimal daytime running light would fall between these extremes. Photometric measurements were taken using parking lamp units from vehicles currently being used in daytime running light field tests. The vehicles in question all use a special bulb having a 15 candela spherical intensity. Because of differences in lamp housings and lenses, the vehicles in question vary in terms of apparent output and angular distribution. Photometric measurements of the lamps in question were taken over a range of viewing angles. A weighting scheme was developed to combine the angular measurements into a figure of merit for each vehicle. These data can be used in the final analysis of field test results to evaluate the functional relationship between daytime running light output and accident rate.

DAYTIME RUNNING LIGHTS - A CONCEPT WHOSE TIME HAS COME

Richardson, DB (Toronto Metropolitan Road & Traffic Department)

Institute of Transportation Engineers
ITE Journal VOL. 54 NO. 10 Oct 1984 pp 28-30 6 Ref.
SUBFILE: EIT; HRIS
AVAILABLE FROM: Engineering Societies Library 345 East 47th Street New York New York 10017

Considerable research has been carried out over the past 20 years, both in Europe and here in North America, which indicates that the use of low beam headlights or the installation of daytime running lights would significantly increase the conspicuity of all vehicles on the road. The corresponding reduction in accidents with the associated medical and social cost savings make the decision to proceed with mandatory running lights an obvious one.

SEE AND BE SEEN

Steel, M
Association of Public Lighting Engineers
Public Lighting VOL. 44 NO. 187 Dec 1979 pp 241-242 9 Ref.

The question whether dipped headlights should or should not be used in well-lighted streets is considered from the standpoint of practical law enforcement and safety of road users. The results are presented, with comments, of roadside checks at two sites in Ayrshire, Scotland, on the use of dipped headlights in streets with contrasting intensity of illumination. The results confirm the recent increase in use of headlights and the total casualty rates in Ayrshire and elsewhere are considered against this trend. A review is included of legislation introduced since 1930 e.g. Introduction of speed limits and use of the breathalyser test, and from figures quoted it is suggested that these measures may well have reduced total road casualties. The author concludes that legislation should now be introduced requiring headlights to be used in all situations during hours of darkness except when vehicles are stationary. (TRRL)

'TURN ON HEADLIGHTS' SAVES MANY LIVES
Estep, AC
State Public Works Bulletin
Feb 1970 Vol 4, P 6, 1 FIG

A REPORT IS MADE ON THE REQUIRED USE OF OF HEADLIGHTS DURING THE DAYLIGHT HOURS ON A 25 MILE LENGTH OF THREE TWO-LANE, TWO-WAY ROADS. COMPARISONS WERE MADE OF THE ACCIDENT RECORDS BEFORE AND AFTER INSTALLATION OF THE SIGNS FOR THE TEST SECTIONS. THE FOLLOWING CONCLUSIONS WERE MADE REGARDING THE HEADLIGHT TEST SECTIONS: (1) THEY DO NOT APPEAR TO REDUCE THE TOTAL NUMBER OF ACCIDENTS, BUT THEY DO REDUCE SEVERITY; (2) THEY APPEAR TO BE VALUABLE WHEN USED ON TWO-LANE SECTIONS LOCATED BETWEEN FOUR LANE FREEWAY SECTIONS; (3) THE COST OF IMPLEMENTATION IS RELATIVELY LOW; (4) TEST SECTIONS ARE WELL RECEIVED BY THE PUBLIC. /SRIS/

THE EFFECT OF RUNNING LIGHTS ON VEHICLE CONSPICUITY IN DAYLIGHT AND TWILIGHT

Horberg, U; Rumar, K (Uppsala University, Sweden; National Swedish Road & Traffic Research Institute)
Taylor and Francis Limited
Ergonomics VOL. 22 NO. 2 Feb 1979 pp 165-173 6 Fig. 22 Ref.

These field experiments were set up to investigate the conspicuity afforded approaching vehicles by running lights of different intensities under various levels of ambient daylight illumination. The main criterion of conspicuity used was the distance at which vehicles appearing in the periphery of the visual field could be detected (peripherical detection distance). A second criterion used was subjectively reported, relative conspicuity, between pairs of vehicles viewed directly, (subjective central conspicuity). In the first experiment, peripheral detection distances were measured in full daylight for vehicles approaching at visual angles of 30 and 60 degrees and showing no lights, or pairs of 50 cd, 150 cd, low beam and high beam lights. In the second experiment, subjective central conspicuity and response time were recorded for paired comparisons among six vehicles, 500 M distant, showing no lights, or pairs of low beam lights of 50 cd or 100 cd intensity and of white or amber colour. In the third experiment, peripheral detection distance was measured during the onset of twilight for vehicles approaching at a visual angle of 20 degrees, over a dry asphalt or snow-covered runway, and showing pairs of running lights of 0, 100, 200 or 300 cd intensity. As expected, there was A strong interaction between illumination level, viewing angle and running light intensity. The normal vehicle low-beam falls within the range of intensity found acceptable for a daylight running light (300-1000 cd). Special running lights may, however, be superior, because they can be optimally designed from a functional point of view.(a) /TRRL/

THE USE OF HEADLAMPS BY VEHICLES DURING DAYTIME AND TRAFFIC SAFETY

Institute for Road Safety Research P.O. Box 71, Deernsstraat 1 2119
Voorburg Netherlands
Jan 1974 Monograph 7 pp 2 Ref. Dutch

In some circumstances vehicles are insufficiently visible during daylight. Therefore it is recommended that headlamps be used at all times during daylight. An additional benefit is that information is given concerning direction of travel. A brightly coloured car forms a contrast with the background, but the brightness of non-dirty dipped headlights will usually exceed the brightest colour. In certain circumstances rear lights can be more easily visible than a bright colour, in other circumstances the reverse is the case.

DAYTIME RUNNING-LIGHTS PROJECT IV: TWO-LANE PASSING PERFORMANCE AS A FUNCTION OF HEADLIGHT INTENSITY AND AMBIENT ILLUMINATION

Attwood, DA
Ministry of Transport, Canada; Tower C, Place de Ville; Ottawa; Ontario K1A 0N5; Canada
Feb 1976 Final Rpt. 49 pp 22 Fig. 4 Tab. 17 Ref.
REPORT NO: TR-RSU-76/11

The experiment investigated the ability of subject drivers to perform a two-lane passing task, with oncoming traffic, as a function of the level of ambient illumination and the headlight intensity of the oncoming vehicle. Eight experienced drivers performed both passing trials and gap-estimation trials, under closed-course conditions, during dawn and dusk hours. Levels of ambient illumination varied from approximately 0.02 to 200 ft-c during the experiments. Headlight conditions included no lihgts, normal low-beam headlights and low-beams with filters which reduced their intensity to about 1/3 of normal. Results indicated that the gaps accepted by drivers in a two-lane passing situation increased with an increase in the intensity of the headlight of the oncoming vehilce. The range of gaps accepted across headlight conditions was less, however, at higher levels of ambient illumination than at lower levels. Best results in terms of mean gaps accepted and minimum variability in performance was achieved with the reduced intensity low-beams. Results are discussed in terms of the optimum intensities of daytime running-lights. Suggestion for future research are presented. /Author/ SRIS 760182 in Part II under the title-Vehicle Detection as a function of Headlight use and Ambient Illumination.

TRANSPORT CANADA

ROAD SAFETY AND MOTOR VEHICLE REGULATION DIRECTORATE

CANADIAN

DAYTIME RUNNING LIGHTS

REGULATION

SUPPLEMENTARY INFORMATION

JANUARY 1989

For further information, contact:

Jim White
Head, Crash Avoidance
Automotive Safety Engineering (ASFBE)
Road Safety and Motor Vehicle Regulation
Transport Canada
Ottawa, Ontario K1A 0N5

Telephone: (613) 998-1965
FAX: (613) 998-4831

3. Justification, the problem, benefits

Studies of accident causes have shown that nearly half of all road accidents are caused by driver recognition problems including both perception and comprehension. Common among such problems is a driver's failure to see another vehicle or to judge its speed. Many methods of improving vehicle conspicuity (noticeability) in daytime have been studied by road safety researchers. The use of lights is considered to be the most effective treatment and its benefits have been confirmed by many studies.

Transport Canada's own research and studies done in Sweden, Finland and the United States indicate that daytime running lights (DRL) fitted to all vehicles would result in a 10 to 20 percent reduction in daytime multiple vehicle collisions (excluding rear-enders). This reduction is equivalent to 3 to 6 percent of all road accidents in Canada. DRL would result in approximately 38,000 fewer multi-vehicle accidents annually. The consequent annual benefits have been estimated at 120 fewer fatalities, 11,000 fewer injuries and a $200 million reduction in medical and accident costs. These economic savings more than outweigh the estimated total purchase and operating costs for daytime running lights, which are estimated at $42 to $145 (present value), depending on the DRL system chosen, over the life of a passenger car or light duty truck.

The accident studies indicate that DRL is effective in both urban and rural areas, summer and winter, at intersections and away from them, and against accidents involving pedestrians and cyclists as well as only motor vehicles.

12. Masking

Some observers fear that increased use of lights in daytime will make it difficult to see unlit vehicles. This is called the "masking" effect. However, masking is probably worse now than it will be when DRL-equipped vehicles are in common use. One reason is that, when masking is most likely (at dawn and dusk, and in inclement weather), drivers switch their headlights on or off at widely varying times. In addition, a national survey conducted by Transport Canada in 1981-82 showed that 15 to 20 percent of all vehicles in use in near-darkness had no lights on at all. These vehicles could be considered to be masked. Automatic DRL systems will improve this situation because the growing numbers of DRL-equipped vehicles will increase the total proportion of "lit" vehicles on the road. The number of potential masking situations is therefore expected to decrease over time.

Another concern is that vehicles with lights on in daytime will make pedestrians, cyclists, parked vehicles, animals in the roadway, potholes, etc. less visible. However, even full-intensity low beam headlights are not sufficiently bright in comparison with natural daylight to cause the "veiling glare" that would interfere with driver vision. Neither would it be safe or reasonable for drivers to interrupt their normal visual scanning patterns to stare at daytime running lights on approaching vehicles and thus miss seeing a potential obstacle. It should be noted that DRL will also benefit pedestrians, cyclists and animals by alerting them sooner to approaching vehicles. In fact, after DRL was introduced in Sweden in 1977, pedestrian and cyclist accidents decreased more than collisions between vehicles.

14. Relevance of foreign accident studies and traffic characteristics to Canada

Some observers have expressed doubt that DRL would be as effective in reducing accidents in Canada as it has been in Sweden and Finland due to the different geographic locations. A study done for Transport Canada by the Atmospheric Environment Service of Environment Canada indicates that the distributions of daytime hours by level of ambient brightness in Sweden and Canada overlap to a great extent and that the total hours of daylight are the same in both countries. The study showed that the proportion of total daylight hours classified as bright or very bright in Sweden was 40%, compared to 54% in Canada. Sweden had correspondingly more hours of average and dull conditions. The differences are not sufficiently large to conclude that DRL would be ineffective in Canada, especially because shadows, cloud cover, precipitation and background all affect visibility of objects in complex ways that cannot be readily analyzed. However, a study of the effects of the Swedish DRL regulation showed that accident reductions in summer (when there is more daylight than in southern Canada) were comparable to those in winter (when there is less).

North American accident studies also support the conclusion that DRL will be effective in Canada. In a study conducted by Transport Canada on Department of National Defence vehicles in 1975-76, vehicles operated with automatic headlights were involved in 20 percent fewer accidents than were unmodified vehicles. In addition, a recent study by the U.S. Insurance Institute for Highway Safety of several U.S. fleets in which half of the vehicles were specially equipped with DRL showed that the DRL-equipped vehicles had 7 percent fewer accidents than the non-DRL group. These results suggest that DRL is effective over a wide range of latitudes and in many different light conditions.

The Canadian accident reduction estimates for DRL were based on the Swedish experience because of the quality of the Swedish data and the fact that it included two years of almost-universal daytime lights use. Some observers have suggested that DRL will be less effective in Canada than in Sweden because of differences in traffic conditions. However, the department is confident in its estimates for Canada because they take account of differences between the two countries in terms of accident configurations (head-on, angle, etc.), accident location (urban/rural) and driving season (summer/winter). Similarities in Canadian and Swedish driving and accident patterns, and in annual vehicle kilometres driven, also lend weight to Transport Canada's accident reduction estimates.

16. U.S. Position

The National Highway Traffic Safety Administration (NHTSA) of the U.S. Department of Transportation issued a proposal on March 24, 1987 that would have permitted new vehicles sold in the U.S. and manufactured on or after September 1, 1988 to be equipped with DRL. The proposal was harmonious with Transport Canada's requirements and would have made DRL legal in all states, including those whose traffic laws may unintentionally prevent the use of DRL and thus could impede Canada-U.S. road traffic.

NHTSA terminated this rulemaking on June 16, 1988 because its non-mandatory nature meant that it might conflict with some state laws that could affect daytime lights use. Termination followed release of a White House Executive Order on federalism, issued after the DRL proposal, that requires evaluation of the impact of all federal regulations in order to limit preemption of state laws, unless preemption is necessary to address a national safety need. If NHTSA demonstrates at some future time that DRL would significantly improve traffic safety in the U.S., a federal mandatory DRL standard could be introduced that would automatically preempt any inhibiting state laws.

The termination notice states that NHTSA does not yet have sufficient safety evidence to mandate DRLs, noting that the benefits demonstrated in Scandinavia may be due to the lower average ambient light level, as compared to the U.S. However, as there is potential merit in using DRLs in the U.S., the agency plans to work with the states to remove any legislation that would prevent the use of Canadian DRL systems, and has requested the American Association of Motor Vehicle Administrators (AAMVA) and the National Committee on Uniform Traffic Laws and Ordinances to urge states to revise any laws that might prohibit or inhibit the use of DRLs. The AAMVA passed a resolution to this effect in October 1988.

NHTSA is continuing research on DRL, and will be taking into account the operational effectiveness of DRLs in Canada, after the Canadian regulation takes effect in 1989, in determining whether there may be sufficient justification to require DRLs on new vehicles in the U.S.

The Society of Automotive Engineers (SAE) Lighting Committee has conducted several outdoor visibility experiments in recent years to determine the most suitable DRL light characteristics for U.S. ambient conditions. It is now preparing an SAE Recommended Practice for DRL.

Citing considerable evidence of the effectiveness of DRL, the U.S. National Transportation Safety Board issued a formal recommendation in November 1985 to the National Safety Council that it develop and conduct a program to encourage motorists to drive with their low beam headlights on during the day.

U.S. Department of Transportation

National Highway Traffic Safety Administration

DOT HS 807 193

Final Report

August 1987

A Study of Daytime Running Light Design Factors

2.0 ACCIDENT RATE FIELD TESTS

Field tests involve comparison of the daytime accident rate of a group of vehicles equipped with some version of DRL with that of a similar group of vehicles not having DRL. In some cases, all vehicles in a given sample have been equipped with DRL at a certain point in time and the experimental accident rate was determined during a period of time following installation. The control accident rate was then determined from a like period of time prior to installation. This general approach has been termed a before/after test. In interpreting data from such a test, it is always possible that an observed accident rate reduction is due to extraneous non-DRL factors confounded with the pre-DRL and post-DRL time periods. These could include changes in weather, changes in vehicle density, changes in driving practices, etc. The preferred type of test uses a vehicle sample which is split into two matched groups. One of these is equipped with DRL and constitutes the experimental group. The other is not so equipped and constitutes the control group. This approach has been termed a concurrent groups test. Assuming that location, vehicle type and driver factor distributions are matched in the two groups, any observed differences in accident rate between groups can then be attributed to the operation of DRL. The concurrent groups approach is generally preferred on experimental design grounds because it provides control of extraneous variables which might otherwise produce spurious results.

Results of a number of DRL field tests are summarized in Table 2-1. These studies have been reviewed by Attwood (1981), with the exception of the Insurance Institute for Highway Safety (IIHS) test (Stein, 1985). The IIHS study used approximately 2000 DRL equipped automobiles, trucks and vans and compared the accident rate of these with a similar number of control vehicles. The DRL configuration used was vehicle parking lights with special bulbs having a 15 candela (cd.) minor filament. For all vehicles in the test, a seven percent reduction in daytime accident rate resulted from the use of DRL.

The overall pattern of results in Table 2-1 shows a considerable range of effects of DRL. For automobiles and trucks, the accident rate reduction figure of seven percent was found in several studies. Reduction percentages in other studies ranged considerably above this. The degree of reduction due to DRL appears to be roughly associated with DRL intensity. The IIHS study and the Swedish before/after study both reported a seven percent accident reduction. The lighting configurations in the latter were highly variable including auxiliary DRL lamps in the range of 300 - 800 cd. which were required on vehicles manufactured after the law went into effect, headlamps and city lamps which have an intermediate output. The IIHS study used increased intensity parking lamps which generally fell into an intensity range somewhat lower than that of the the Swedish DRL standard. For many of the studies listed in Table 2-1 in which headlights were used as DRL, somewhat greater accident rate reductions can be noted. There is some suggestion of an increasing

Table 2-1. Summary of Daytime Running Light Field Tests

Source	Vehicle Type	DRL Configuration	Test Approach	Approximate DRL Intensity (cd.)	Accident Rate Effect
Greyhound Bus Lines (1960s)	Buses	Headlights	Before/After	6,000 - 15,000	12 - 24 % reduction
AT & T Long Lines (1972)	Automobiles/ Trucks	Headlights	Before/After	6,000 - 15,000	33 - 44 % reduction
Checker and Yellow Cab Companies	Automobiles	Headlights	Concurrent Groups	6,000 - 15,000	7 % reduction
North Carolina Motorcycle Headlight Law (1977)	Motorcycles	Headlights	Before/After	6,000 - 15,000	5 % reduction
Port of NewYork Authority (1965)	Automobiles/ Trucks	Parking Lights	Concurrent Groups	20 - 50	18 - 23 % reduction
Transport Canada (1977)	Automobiles/ Trucks	Headlights	Concurrent Groups	6,000 - 15,000	22 % reduction
Swedish DRL Law (1975-1979)	All Vehicles	Headlights or Auxiliary DRL	Before/After	300 - 15,000	7 % reduction
Insurance Institute for Highway Safety (1982-1984)	Automobiles/ Trucks	Parking Lights	Concurrent Groups	60 - 360	7 % reduction

DRL effect with lamp center intensity.

The exception to this trend is the Port of New York Authority study (Cantilli, 1970). In this study, the DRL configuration was standard parking lights which generally involved rated spherical intensities on the order of 3-6 cd. and center intensities at H-V on the order of 20-50 cd. Despite, the low intensity range, accident rate reductions of 18-23 percent were reported. It should be noted that rear parking lamps were on during daytime in this study and the analysis used rear-end accidents as one of the accident types analyzed. When rear-end accidents were excluded then the lower reduction figure (approximately 18 percent) was obtained.

Perhaps the most interesting characteristic of the Table 2-1 data is that all DRL accident rate field tests conducted to date have shown a positive effect. In all cases, use of DRL has been found to result in apparent accident reduction. In most of the studies summarized in Table 2-1, either statistical analyses were not performed or the results failed to reach statistical significance. Attwood's (1981) argument in this regard is well taken. He noted that if there is, in fact, no benefit of DRL in the general population, then multiple field tests should show about as many negative results as positive ones. The fact that all known studies have produced positive results suggests that the accident reduction in the population due to DRL is not zero, and probably lies in the range from 10-15 percent. The types of collision accidents which appear to be influenced by DRL include head-on and conflicting path (right angle) accidents on main highways. These are often severe in terms of injury and damage. Indeed Cantilli's (1970) analysis suggested that when accidents were graded for severity, using a point scheme based on insurance practice, the reduction in severity due to DRL was considerably greater than that for accident rate alone.

1988

Daytime Running Lights — A potent traffic safety measure?

Gabriel Helmers

PREFACE

The introduction of the first general laws for compulsory driving with Daytime Running Lights (DRL) in Sweden as well as in Finland and Norway has created a need for a review of the evidences pro and con DRL as a traffic safety measure. The Swedish Traffic Safety Office has initiated this project and sponsored the work on the present report.

The author is fully responsible for the report. Dr Kåre Rumar has contributed with valuable information, viewpoints and criticisms of the draft. Christina Ruthger has corrected my poor English and edited the manuscript.

Gabriel Helmers.

DAYTIME RUNNING LIGHTS - A POTENT TRAFFIC SAFETY MEASURE?

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ABSTRACT

This report consists of a literature survey and an analysis of the effects of motor-vehicles equipped with Daytime Running Lights (DRL) on traffic accidents and driver behavior. The growing use of DRL from the very beginning in the early 1960' to present times is also reviewed. Finally, DRL are evaluated as a traffic safety measure.

1 DEFINITION

Daytime Running Lights (DRL) stands for daytime driving with lit headlights or lit special lamps mounted on the front of the car. The main purpose of DRL is a general increase of vehicle visibility/detectability/conspicuity for the fellow road users.

2 PURPOSE

The purpose of this report is twofold. The first goal is to make a world wide review of the growth of DRL-driving. The second goal is to make an unbiased evaluation of empirical findings in support of as well as against DRL as a potent traffic safety measure.

An effort has also been made to combine these two goals with the goal to write a report easy to grasp for readers specialized neither in DRL nor in scientific methods.

Having studied the first part of section 4 (page 8), each of the following sections can be understood separately without reading the previous ones.

3 DRL IN A HISTORICAL PERSPECTIVE

3.1 The idea of daytime driving with headlights on

According to Allen and Clark (1964) the idea of daytime driving with lit headlights probably originates in Texas. In 1961, there was a safety campaign requesting daytime driving with headlights on during major holidays as a sign of compliance to the campaign to drive safely. As early as the fall of 1961 the idea was adopted by the American Trucking Association in a nation-wide campaign.

1.4 Early attitudes towards and experiences of DRL in Sweden

The frequency of daytime driving with low beam on was observed in different parts of Sweden in the spring of 1967. As an average, 1.2 per cent of the vehicles had their headlights on. A second observation showed that about 5 per cent of the drivers did not switch on their headlights even in very bad daylight visibility conditions. A third indicated that specular reflections on vehicles in daylight as well as lit headlights are important factors in vehicle detection. (Rumar 1968).

Daytime driving with low beam was recommended by the Swedish Traffic Safety Office as a traffic safety measure when Sweden changed from left to right hand traffic in 1967. Rumar (1968) recommended low beam driving in daylight on the basis of the American experiences and the results of his observation studies summarized above.

Svensson (1968) has referred to some early Swedish trends and experiences as follows:

- In 1967, after a short test period the Swedish State Railways introduced lit high beams on their trains during daytime. Longer detection distances were reported by workers along the track.
- In 1968 the Swedish Armed Forces introduced daytime use of low beam headlights on the roads. This decision was based on subjective judgments of improved traffic safety during a preceding test period.
- All new vehicles delivered to the Swedish Police from 1968 onwards must have their headlights lit over the ignition.

1.5 Progress in DRL driving in Scandinavia in the 1970's and 1980's

In the 1960's, Sweden was in the lead in introducing DRL driving in Scandinavia. But in 1970 Finland took over this role. The Finnish Ministry of Transport decreed that "Motor vehicles should from October 1, 1970, to March 31, 1971, drive on low beams outside built up areas". This act was meant as a recommendation, but was interpreted as a law by the public. The effect was a vast majority of drivers obeying the recommendation: about 90 per cent in the period October - February, and about 75 per cent in March 1971.

The same recommendation was valid for the winter 1972/73 but the observance decreased. An analysis of the accidents occurring during the winter 1970/71 showed a decrease in daytime accident rate compared to expected or predicted numbers.

This information in combination with an ambitious national traffic safety goal was the main basis of the Finnish Transport Ministry for changing the recommendation to a compulsory DRL law. In the first winter (1972/73) the law was valid for 5 months, the next winter for 7 months and then finally for 8 months during the following winter periods.

Andersson and co workers were commissioned by the "Scandinavian Traffic Safety Council" (NTR) to evaluate trends in the Finnish accident statistics before and after the introduction of DRL. They found a large decrease in "multiple" daylight accidents as compared to single and "multiple" accidents in darkness (Andersson and co-workers 1976). "Multiple" accidents are accidents in which two or more road users are involved. Consequently, pedestrian as well as cycle and moped accidents are included in this concept.

The next step towards a general use of DRL was taken by the NTR after publication of the report by Andersson (Andersson and co-workers 1976). Based on available Scandinavian as well as Inter-

DRL rely on an assumption that there is a relation between vehicle visibility/detectability/conspicuity and accident risk. The theory can be stated in the following way:

Improvements in vehicle visibility create better conditions for vehicle detection and driver judgments. The general effect of improved conditions for detection and judgments will be an increase in the mean detection distances and safety margins to vehicles on the road. The most important consequence for road safety is a decrease in the occurrences of too short detection distances and too small safety margins in traffic. Too short detection distances and too small safety margins are postulated to be directly related to perceptual driver mistakes, near accidents and accidents.

The implication of the theory above is that there is a positive net effect of DRL, implying a decrease in the number of traffic accidents and their total costs to society. (Weather this measure is cost effective or not is a separate question.)

This does not mean that DRL have no other effects related to road safety. It is quite possible and even probable that certain types of accidents will increase in number. There can be novelty effects, effects related to the proportion of DRL-vehicles on the road, masking effects, accident migration effects etc, but the main point of the theory above is that the net effect of DRL on traffic safety is positive.

One of the purposes of this report is to make an unbiased evaluation of empirical findings in support of as well as against DRL. At the end of this report we can hopefully accept or reject the theory above.

The ultimate purpose of DRL is the prevention of traffic accidents. A decrease in daytime "multiple" traffic accidents is the evident and direct safety measure, which we should like to use in an evaluation of DRL.

A serious scientific problem is, however, encountered. Traffic accidents are so infrequent that we must study huge groups of vehicles (in fleet studies) or a whole vehicle population of a country or a state (in before and after studies) in order to reach differences which are statistically significant. This is the case even in those instances where the "true" effect of a counter measure is as large as 10 to 20 per cent. Another important condition in all before and after studies is that no other safety measures are introduced during the period of study.

The obvious consequence of these facts is that we cannot expect statistically significant traffic safety effects of DRL from limited accident studies. On the other hand, if there is a "true" and strong effect, we can expect consistent trends in the accident data of such studies.

As a complement to studying traffic accidents as a direct traffic safety measure, there is the possibility of studying indirect traffic safety measures. These measures are related to the theory about the causal connection between the actual counter measure and the factors generating traffic accidents.

In the case of DRL, the theory postulates that an increased motor-vehicle visibility/detectability/conspicuity will decrease the frequency of too short detection distances and too small safety margins in traffic. This is directly related to a decrease in driver perceptual mistakes, near accidents and accidents. The indirect traffic safety measures of DRL are therefore measurements of increased detection distances of motor-vehicles, improved driver judgments or overt driver behavior related to an increased motor-vehicle visibility/detectability/conspicuity.

preliminary until they have been confirmed or contradicted by further research. But what is most interesting as to their results so far is that they are very well in accordance with the theory above: The positive effect of DRL on traffic safety is directly related to an increase in visibility/detectability/conspicuity.

6.2 Proportion of DRL-vehicles and accidents

The proportion of DRL-vehicles in traffic can be an important factor directly related to the accident risk. Several possible outcomes can be described. Some possible cases are discussed below.

Statement: When a small proportion of vehicles using DRL, the accident risk for these vehicles will decrease

There are a rather large number of studies supporting this statement. Among those are the early results from the Greyhound Corporation already mentioned (Allen and Clark 1964) and that of Cantilli (1969), but also recent results as for example the fleet study reported by Stein (1985). In a report from the U.S. Department of Transportation (1987b) a summary table of known field test results is presented. In the report, these results are commented on as follows: "Perhaps the most interesting characteristic of the ... data is that all DRL accident rate field tests conducted to date have shown a positive effect."

There are also several studies showing a decrease in accident risks for motor-cycles when this category of vehicles is using DRL exclusively. See for example Janoff & Gassel (1971) and Zador (1985).

The statement above is therefore accepted.

Statement: The decrease in accident risk for vehicles using DRL is compensated for by an increase in accident risk for those vehicles or road users which are not using DRL.

If this statement is correct, a law on general DRL-driving would have no influence on the total number of accidents in daylight.

There are two studies which can contribute to accepting or rejecting this statement. The first is the evaluation of accidents after the Finnish introduction of DRL-driving (Andersson and co-workers 1976). The second is the evaluation of the Svedish accident statistics before and after the introduction of the compulsory DRL-law (Andersson and co-workers 1981).

The Finnish conditions and results are summarized as follows. The first period studied was a period characterized by propaganda for using DRL outside built-up areas during the winter season. The frequency of DRL-driving was reported to vary between 40 and 75 per cent with an average of 65 per cent.

The second period was characterized by a firm official recommendation of DRL-driving in the conditions mentioned above. The frequency of DRL-driving increased. It was reported to vary between 61 and 96 per cent with an average of 84 per cent.

The last period was when the compulsory law of DRL-driving was in force during the darker period of the year outside built-up areas. The frequency of use varied between 93 and 99 per cent with an average of 97 per cent.

Andersson and co-workers (1976) have analyzed the accident statistics for these three periods. In the analysis of the accident data, single accidents and "multiple" night-time accidents have been used as controls. Their results are summarized as follows. The average frequencies of DRL-driving during the three periods were 65, 84 and 97 per cent. The relative numbers (or risk) of "multiple" accidents in daylight for these three periods were with an increasing proportion of motor-vehicles using DRL. The size of this reduction is larger than the reduction of daytime multi-motor-vehicle accidents. This result is also confirmed by the Norwegian evaluation (Vaaje 1986).

The latter of the two processes postulated above seems to be the predominant. Motor-vehicle conspicuity is most important for the unprotected road user in avoiding conflicts and collisions with motor-vehicles.

The statement above is therefore rejected.

6.3 Simultaneous use of rear presence lights with DRL and rear-end collisions

Rear presence lights in daylight can have two counter-acting effects. One promoting detection of the vehicle, the other masking the braking lights. Attwood (1981) draws the following conclusions after studying this topic: The red rear presence lights "are bright enough to be useful as running lights during the period one-half hour prior to sunset to one-half hour after sunrise". "The current presence lights are not so bright that they would mask the onset of brake or turn signals....".

Cantilli (1969) found in his study that rear end collisions was the category of accidents which showed the largest reduction. This result has not been repeated in the before-after analyses of Finnish and Swedish accidents conducted by Andersson and co-workers (1976 and 1981). In these studies the reduction of rear-end collisions has been very small.

7 INDIRECT MEASURES OF DRL EFFECTS: VISIBILITY/DETECTABILITY/CONSPICUITY, MASKING, DRIVER JUDGMENTS, AND OVERT BEHAVIOUR

7.1 An introduction to indirect safety measures

The main scientific problem with indirect traffic safety measures is that their relation to significant features of driver behavior in ordinary traffic, driver mistakes and traffic accidents is not sufficiently known. The validity of each of these measures can therefore be questioned.

One main problem is how our eye fixations and eye movements are related to driver visual input from the road scene. What importance has central vs pheripheral visual cues?

Another important problem is to what degree conscious driver judgments in an artificial experimental situation may be generalized to driver judgments in normal automized driving?

What relation is there between different visual cues and detection? An object can for example be perfectly visible when you know it is there, but its conspicuity can be bad when you are looking somewhere else.

One way to overcome these difficulties is to obtain a number of indirect measures in each area of investigation.

7.2 Studies of Visibility/Detectability/Conspicuity

In an experiment Attwood (1975) has shown that detection in central vision of a vehicle without DRL is very much dependent on ambient illumination. When the vehicle uses the ordinary low beams as DRL the opposite is the case: Detection distances are large and independent of ambient illumination.

8 COST BENEFIT STUDIES OF DRL

Generally, it is a very difficult task to make cost benefit calculations which will be agreed upon. There are several reasons for this condition. One main reason is that the benefit or the saved costs for reductions in frequency and severity of accidents must rely on uncertain assumptions. Another reason is that the costs are also difficult to calculate when the increase in costs is a very small part of the total cost of buying and driving a vehicle.

Rumar (1981) has calculated the costs of DRL to increase the total costs by about 1 per cent. The U.S. Department of Transportation (1981) has calculated the initial cost to be $39.26 and the annual maintenance and fuel costs to be $26.97 for passenger cars. The latter calculations would correspond to a total increase in costs by between 2 and 3 per cent.

In a recent report from Transport Canada (1986?) much lower costs have been predicted. The average lifetime cost per vehicle has been calculated to be $330 for ordinary low beams (including all lights simultaneously lit), $160 for reduced low beams and $70 for high intensity parking lights or separate new daytime running lights. The corresponding increase in the total costs due to these DRL alternatives would be less than 1 per cent, less than .5 per cent and less than .2 per cent, respectively. These costs are calculated to be balanced by accident reductions of the following sizes: 11 per cent for the ordinary low beam, 5 per cent for the reduced low beam and 2 per cent for high intensity parking lights or for separate daytime running lights.

If the latter calculations are realistic and the "true" accident reduction is above 11 per cent there is a profit in introducing compulsory driving on ordinary low beams. By introducing a separate daytime running lamp the cost is reduced to about 20 per cent of the original one.

9 CONCLUDING REMARKS

DRL rely on an assumption that there is a causal relation between an increase in motor vehicle visibility/detectability/conspicuity and a decrease in the risk of traffic accidents. (See section 4).

This assumption is strongly supported by the results of the accident studies found in literature. (See section 6). In a recent analysis of casualties in traffic accidents in Sweden during the period 1970-1986, Nilsson (1980) has identified three effective safety counter-measures, which have been introduced: A compulsory use of safety belts, DRL and helmets (for motor-cycle and moped riders).

There is further support from a large majority of studies in which the effect of DRL on visibility/detectability/conspicuity of vehicles, on driver judgments and on overt driver behavior has been studied. (See section 7).

Support is also given by the results from "on-the-spot" accident investigations. Two such studies are given as examples below.

Sabey and Staughton (1975) classified observed driver errors in a number of categories. Among the 6 most frequent classifications used, the following 4 are directly related to vehicle visibility/detectability/conspicuity: "Looked, but failed to see", "Lack of care", "Distraction" and "Failed to look". For observed pedestrian errors 33 per cent belonged to the two categories "Failed to look" and "Looked, but failed to see".

Hantula (1987) reported "perception errors" in 51 per cent of all studied motorcycle intersection accidents.

Taking all evidences pro and con DRL, which have been found in the literature, into account, there is a strong support for a

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DAYTIME LIGHTS – 20% *Fewer Accidents*

BY ED FINN

Next year's cars, trucks and buses will come with automatic daytime running lights, a move that reduces their chances of being in an accident by 20%

"I didn't see the other car in time!"

That's the most often heard excuse from drivers involved in automobile collisions — if they're lucky enough to survive.

Faulty perception — the failure to see an oncoming vehicle clearly and soon enough — has been cited in some studies as the cause of nearly half of all road accidents.

That's why the federal government has decided that all cars, buses and trucks sold in Canada, starting with the 1990 models, must be equipped with automatic daytime running light (DRL) systems.

These lights will be activated whenever a vehicle is operated without its regular headlights on. They'll go out when the headlights are turned on or the motor turned off.

Some carmakers have already installed DRLs in a few of their 1989 models, but they won't become mandatory until next year's cars come on the market.

Ottawa's decision to amend the Motor Vehicle Safety Regulations was not made lightly. It came only after extensive research by Transport Canada and successful experiments with daytime lights in Finland, Sweden and Norway.

Findland became the first country to require DRLs as standard motor vehicle equipment, back in 1972. Since then, the number of collissions there has dropped by 27%. The results in Sweden, which made DRLs compulsory in 1977, have been equally impressive. Multiple vehicle collision rates during the winter months have gone down by 20% in urban areas and by 17% in rural areas, with slightly smaller reductions during the summer.

The success of DRL use in the northern European countries had a strong influence on Canadian road safety experts, because Canada's climate and light conditions are very similar. Tests in Canada have also been conclusive. One study be Transport Canada of Department of Defence vehicles fitted with automated daytime lights found they were involved in 20% fewer accidents than were the unmodified vehicles.

Grant Smith, Transport Canada's chief of road safety promotion, predicts that the introduction of mandatory DRLs in Canada will prevent as many as 38 000 multi-vehicle accidents each year.

"Such a reduction," he says, "means that at least 120 lives will be saved annually, there'll be 11 000 fewer injuries and a $200-million savings in medical costs. These benefits greatly outweigh the estimated purchase and operating costs of daytime running lights."

The costs will be low. The new regulation calls for DRL systems that are very economical, having two low-intensity lights and extended bulb life. They'll add no more than $15 a year to the costs of operating a car or light truck, and probably no more than $120 in total over the life of an average vehicle.

Dennis Attwood, a specialist in human factors engineering, says that scientists have seldom been as unanimous as they are in supporting the federal DRL initiative.

His research has focused on the ability of the human eye to detect and respond to moving objects. He found that drivers habitually underestimate the speed of an approaching car that is unlit. That miscalculation can have tragic consequences, not just in passing other cars on a two-lane highway, but also in city driving.

Intersections, for example, are notorious "accident black disadvantages in multimodalism, which can best be explained for bus and rail in terms of patronage, terminal facilities, parcel trade, image, and operations.

The rail mode has slightly more to gain from MPTs than the intercity bus. Rail has large overcapacity in many of its terminals. Joint use of this would reduce its costs and make more efficient use of the space. The intercity bus mode should benefit from new terminals and improved public access, but these carriers fear the cost and supporting the role of the rail mode. The local transit operation complements the intercity modes, because it distributes the intercity travelers at the end of their trips. The actual mix of benefits and disadvantages to the local transit operator depends largely on the location of the MPT.

An MPT terminal complex offers travelers numerous advantages over unimodal terminals, mainly: improved transit connections and thus easier terminal access from various parts of the city, improved opportunities to transfer between intercity modes to complete a wider range of multistage trips, and possibly some schedule coordination among the carriers. For many intercity bus travelers, an MPT may be the first good terminal facility they will have available.

The municipality has an interest in MPTs because the terminal area is often the only portion of intercity transportation coming under municipal influence. An MPT contributes to a municipality's self-image as being progressive and vital, and may be part of a larger municipal redevelopment scheme. The municipality is usually involved in large commercial real estate development, trading off certain benefits (e.g., taxes) to induce development, and thus this joint development may increase the degree of municipal benefit from a multimodal terminal project.

For the provincial and federal governments, the benefits and disadvantages of MPTs are more complex and thus more difficult to generalize. There are varying levels of provincial interest, Ontario and Saskatchewan being perhaps the most interested in MPTs. Provincial involvement results from the provinces' responsibility for commuter rail and local planning. Also important for the provinces is the trade-off between public modes of intercity transportation (with few demands on provincial funds) and the automobile mode (providing roads is an enormous provincial expenditure). The federal government also sees the same trade-off, and may see MPTs as a way to promote public transport (thus saving energy and subsidies).

Proponents of multimodal terminals often suggest "government" as the MPT builder. Reasons for this include: (1) inadequate/unclear rate of return for investment by carriers, (2) proponents' lack of resources, and (3) MPTs fulfill some federal interest in the national transportation system from "energy saving" to providing "equitable" terminal facilities for bus users to righting other "wrongs").

Conclusions

The conclusions one might draw from the above are:

1. Multimodal passenger terminals are a subject of continuing and current interest to many of the actors involved in passenger transportation throughout the world.
2. MPT may prove beneficial to the Canadian passenger transportation system in developing an environment of cooperation to the benefit of the traveling public and system users.
3. The federal government appears to be the most appropriate authority to guide the development of MPTs in Canada.

Bell is in Program Evaluation, Transport Canada, Ottawa, Canada.

Daytime Running Lights—A Concept Whose Time Has Come

By David B. Richardson

The announcement by Canada's Federal Minister of Transport on May 31, 1984, that the installation of daytime running lights for all new vehicles is to become mandatory, represents a major breakthrough for road safety in Canada. The effective date of September 1986 is two years away, however, and a substantial public relations program must be undertaken in the interim. The purpose of this marketing campaign will be not only to ensure that the motoring public is convinced of the necessity for these new regulations, but also to persuade drivers who own or operate older vehicles to utilize their low beam headlamps whenever they are behind the wheel.

Considerable research has been carried out over the past 20 years, both in Europe and here in North America, which indicates that the use of low beam headlights or the installation of daytime running lights would significantly increase the conspicuity of all vehicles on the road. The corresponding reduction in accidents with the associated medical and social cost savings make the decision to proceed with mandatory running lights an obvious one. Despite the wealth of research and a reasonably widespread effort to inform the public of the benefits of driving with their headlights on during all roadway and

Canada may see the light

Law would add safety device to all vehicles

By GEORGE MOORE
THE STAR's AUTO EDITOR

Daytime running lights on motor vehicles, advocated by *The Indianapolis Star* more than two decades ago, may soon become mandatory throughout Canada.

The Canadian Department of Transportation is proposing a law to require all new vehicles that are either manufactured or for sale in Canada after Sept. 1, 1988, to be equipped with daytime running lights.

Extensive testing of the lights by several large motor fleets showed that there were up to 25 percent fewer accidents involving vehicles equipped with the devices than those without.

Industry officials believe that if Canada were to make the lights required equipment, the United States might follow suit, although top engineers for leading American companies warn that the matter is not as simple as it seems.

The Canadian department's proposal would entail two lights on the front of each motor vehicles with a minimum of 600 candlepower. They would be required to operate at any time the vehicle is running during daylight hours.

Known by the shortened title of Transport Canada, the department has asked for comments on use of the lights from the automobile industry and other interested parties by Oct. 13 of this year.

In March 1964, *The Star* equipped its 75 staff cars and trucks with running lights after it had been shown they could reduce daytime accidents by as much as 15 percent. Those lights were equipped with turn-signal-type bulbs of 21 candlepower.

Running lights had shown their value during extensive testing by Greyhound Lines and in studies conducted at Indiana University. The newspaper advocated the use of running lights.

The premise for running lights is based on the fact that motorists are less likely to run into each other if they can see each others' vehicles, particularly in the dawn and dusk hours.

Several tests through the years have proven that running likes do make it easier for vehicles to be seen and do actually reduce accident rates.

In a paper released in 1979, Dr. Merrill J. Allen, a doctor of optometry at Indiana University, reported that Greyhound Lines experienced an 11 percent reduction in accidents system-wide after company buses began operating with the headlights turned on during the daytime hours.

More recently, Southern New England Telephone Co., Southwest Fleet and divisions of Dow Chemical USA have incorporated daytime running lights on portions of their fleets for test purposes. All showed marked reductions in accident rates for vehicles equipped with the lights.

In this country, the National Highway Traffic Safety Administration says it might consider requiring vehicles manufactured in the U.S. to be equipped with running lights at some time in the future.

"We're waiting to see what Canada does before we do anything," says Taylor Vincent, senior staff attorney who handles all of the safety administration's lightning matters.

Finland and Sweden already have mandated the use of running lights. Although the laws of those two countries are not identical, they serve the same purpose — to assist drivers to see other vehicles in periods of poor daytime visibility.

Reduced daytime light conditions are prevalent in such places as Finland and Sweden, which experience long dawn- or dusk-like periods because the tilt of the northern polar region toward the sun creates dim daylight conditions for hours at a time.

It made those Scandinavian nations prime candidates for the use of running lights.

Finland took the lead by mandating their use in 1972. Even before then, many motorists drove with their headlamps on during the daytime as the result of a government educational campaign dating back to 1968. Sweden adopted the running lights four years later.

In the 1968-1974 period, the crash rate in Finland decreased as much as 27 percent, depending on the year.

The Insurance Institute for Highway Safety, based in Washington, D.C., reported that when the Swedish law went into effect in 1977, multiple-vehicle crashes in daylight decreased 20 percent in urban areas and 17 per-

...TINUED

cent in rural areas during the winter months. The same types of accidents decreased 12 percent in urban areas and 3 percent in rural areas during summer months, the institute reported.

Transport Canada first approached the feasibility of running lights in early 1984 when it surveyed automakers on how to incorporate the lights on cars manufactured or sold in Canada.

The survey covered a myriad of subjects, ranging from modifications to passenger cars, truck and vans, to the cost and penalties involved. Most of the subject matter is relevant to what is being proposed today, but there has been some change in direction in the automakers' technical thinking.

"There are several problems, and we're working on how to overcome them," said Earle Welchel, director of public relations for GM of Canada. "We didn't have much time following Transport Canada's official proposed final rule. They gave GM 90 days to reply."

The Transport Canada proposal eliminated the use of a turn signal/parking light system as a possibility. In standard form, there isn't sufficient light. Furthemore, the required 800 candlepower per light is too much heat for the plastic, turn-signal componentry to handle.

The most practical approach, engineers believe, is to use an existing headlamp system of reduced intensity. In the case of vehicles with hidden, pop-up headlamps, it would be necessary to use a secondary set of headlamps integrated into the body work.

Motorists can be assured that running lights won't come free.

They will entail an increase to the cost of the vehicle, although automakers won't say how much. Estimates run from 820 on up.

Another cost is going to be fuel consumption. Not only is there going to be a drop in fuel mileage but running lights also cause problems with the federal CAFE (Corporate Average Fuel Economy) requirement for automakers.

An automaker must meet prescribed standards for the average fuel consumption for its series of vehicles (CAFE) or be subject to fines. For 1987, the average is supposed to be 27.5 miles per gallon. General Motors and Ford are not going to meet that figure even without running lights. With them, the estimated mileage would be down another half-mile per gallon.

A simple way around that problem would be for makers to test without the running lights being activated. But, the way the Canadian standards are presently written, fuel consumption tests must be conducted with the lights turned on.

[redacted] USE COMMITTEE REPOR[redacted]

.7)

Date Referred: February 25, 1991

FURTHER REFERRALS: Labor and Commerce
Finance

Date of Committee Action: 3/19/91

The TRANSPORTATION Committee considered:

HB 162

HOUSE BILL NO. 162

EXTEND BOARD OF MARINE PILOTS

"An Act extending the Board of Marine Pilots in the Department of Commerce and Economic Development; and providing for an effective date."

RECOMMENDATIONS:

be replaced with ______________________ [ ] the same title / [ ] a new title

[ ] have attached amendments(s)

[✓] do pass

[ ] do not pass

[ ] no recommendations

[ ] individual recommendations

[ ] additional referral to the ______________________ Committee

ADOPTS: ______________________ letter of Intent

ATTACHES NEW FISCAL NOTE(s): (Dept)

[ ] fiscal impact ______________________

[✓] zero fiscal note DCED

APPROVES PREVIOUS: (Dept/Date)

[ ] fiscal note(s) ______________________

[ ] zero fiscal note(s) ______________________

SIGNING DO PASS	*DP*	*OTHER RECOMMENDATIONS*	*DNP*	*NR*	*AM*
Gene Kubina	✓				
Gail Phillips	X				
[signature]	X				
[signature]	✓				
[signature]	✓				
[signature]	✓				

[signature]

CHAIRMAN'S SIGNATURE

FISCAL NOTE

STATE OF ALASKA
1991 LEGISLATIVE SESSION

No. 1
Bill Version: HB 162
(H) Publish Date: 2/25/91

Revision Date: ______
Title: Extending the Board of Marine Pilots . . . .
Sponsor: Rules Committee
Requestor: Governor

Department Affected: Commerce & Economic Dev.
BRU: Occupational Licensing
Component: Administration

COMPONENT SERIAL NO. 0 3 5 6

Expenditures/Revenues: (Thousands of Dollars)

OPERATING	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME						
TEMPORARY						

Estimate of current year impact: None

ANALYSIS: (Attach a separate page if necessary.)
Funding for the Board of Marine Pilots is included in the department's FY 92 operating budget request and, therefore, new funds are not required. The FY 92 projected budget for the Board of Marine Pilots is explained on the attached page.

Prepared By: Jennifer Strickler, Administrative Officer Phone: 465-2144
Division: Occupational Licensing Date: January 31, 1991

Approved by Commissioner: Glenn A. Olds
Agency: Department of Commerce & Economic Development Date: January 31, 1991

Distribution (by preparer): Legislative Finance, Legislative Sponsor, Requestor, OMB, & Impacted Agency(ies).

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COMMITTEE COPY

CONTINUATION OF FISCAL NOTE ANALYSIS

The Division of Occupational Licensing, Department of Commerce & Economic Development, is funded primarily by program receipts generated from licensing fees. All licensing programs share in the responsibility of covering a percentage of the administrative costs based on the number of current licensees (123 marine pilot licensees) divided by the total number of current division licensees (29,108). In FY 92, costs for the Board of Marine Pilots are projected as follows:

Personal Services:		
- Administrative costs	4.5	
- 25% Licensing Examiner	10.6	
- 50% Investigative	24.9	
Sub-Total:		40.0
Travel:		
- Administrative	.3	
- Board Travel	8.0	
Sub-Total:		$ 8.3
Contractual:		$ 2.3
Supplies:		$ .2
Equipment:		$ .0
TOTAL: FY 92 Costs		$ 50.8
Average Annual Revenue:		$ 11.3

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COMMITTEE COPY

House Transportation Committee

DATE: 3/19/91

PLACE: 17

SUBJECT OF MEETING:
HB 194
HB 162
HB 175

NAME	REPRESENTING	BUSINESS/PERSONAL MAILING ADDRESS	ZIP	(H) PHONE	(W) PHONE	DO YOU WANT TO TESTIFY?		WHAT SUBJECT/ WHICH BILL?
Kirby Day	CLAA	1429 Tongass KTN	99901	2257711	2256157	Y	N	HB 194
D MONKMAN	Alaska Coastwise Pilots	Dillon & Findley One Sealaska Plaza Jno	99801		586-4000	Y	N	"
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		Y	N	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Y	N	[illegible]
Capt. [illegible]	[illegible]	Box 597 [illegible]	[illegible]	[illegible]	[illegible]	(Y)	N	HB 194
GREG O'CLARAY	MEBA	124 FRONT ST JNU	99801	586-6[illegible]		(Y)	N	HB 175
Ann Boudreaux	OCC. LIC DCED			~~2538~~	2538	[illegible]	(N)	HB 194
Ann Boudreaux	OCC. LIC DCED				2538	(Y)	[illegible]	HB 162
Jim Kohler	SE CONFERENCE	124 W. 5th St. / Juneau	99801	586-1905	463-3445	(Y)	N	HB 175
Don Kubley	Masters Mates & Pilots & Int. Club Pacific	12280 Mendenhall Loop RD	99801	789-9223		(Y)	N	H.B. 194 H.B. 175
Jim Ayers	AMHS/DOT	P.O. box R	99811	5-3959 →		(Y)	N	H.B. 175

Page ___ of ___

(7) [redacted]OUSE COMMITTEE REPOR[redacted]

Date Referred: March 1, 1991 FURTHER REFERRALS: Finance

Date of Committee Action: 3/14/91

The TRANSPORTATION Committee considered: HB 175

HOUSE BILL NO. 175 APPROP:MARINE HWY VESSEL REPLACEMENT FUND

"An Act making an appropriation to the Alaska marine highway system vessel replacement fund; and providing for an effective date."

RECOMMENDATIONS: [ ] the same title
be replaced with ______________________ [ ] a new title

[ ] have attached amendments(s)
[✓] do pass
[ ] do not pass
[ ] no recommendations
[ ] individual recommendations
[ ] additional referral to the ______________ Committee

ADOPTS: ______________ letter of Intent

ATTACHES NEW FISCAL NOTE(s): (Dept) APPROVES PREVIOUS: (Dept/Date)

[✓] fiscal impact ______________ [ ] fiscal note(s) ______________

[ ] zero fiscal note ______________ [ ] zero fiscal note(s) ______________

SIGNING DO PASS	*DP*	*OTHER RECOMMENDATIONS*	*DNP*	*NR*	*AM*
[signature]	✓				
[signature]	✓	[signature]		X	
[signature]	✓	[signature]		X	
[signature]					

[signature]
CHAIRMAN'S SIGNATURE

REPRESENTATIVE
BEN GRUSSENDORF

P O Box 928
SITKA, ALASKA 99835
(907) 747-8458

RULES COMMITTEE
LEGISLATIVE COUNCIL

DISTRICT 3
ELFIN COVE
PELICAN
PORT ALEXANDER
SITKA
TENAKEE

Alaska State Legislature

WHILE IN JUNEAU
PO Box V
JUNEAU, ALASKA 99811
(907) 465-3824
(907) 465-3720

House of Representatives
SPEAKER OF THE HOUSE

MEMORANDUM

TO: Rep. Richard Foster, Chairman
Members
House Transportation Committee

FROM: Rep. Ben Grussendorf

DATE: March 19, 1991

RE: HB 175-Appropriation to the Alaska marine highway system vessel replacement fund

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HB 175 would appropriate $45 million dollars into the vessel replacement fund which was created by the legislature last session.

The Department of Transportation and Public Facilities estimates that it will cost $29 million to replace a small, feeder ferry, $39 million to replace a mid-sized ocean-going vessel and $102 million to replace a large vessel such as the Columbia. The average age of our fleet is approximately 23 years and it would cost over $300 million to replace all vessels. In the fleet conditions survey, which was just released by DOT/PF, an estimate for refurbishing our entire fleet to operate through the turn of the century could be as high as $92 million.

When the vessel replacement fund was established last year, it was anticipated that annual appropriations would be made to the fund. Governor Cowper had included $45 million in his original budget. Unfortunately, Governor Hickle did not include any funding for this proposal in his current budget.

In your packet you will see letters of support for funding of the replacement fund from communities and businesses including Alaska Electric Light and Power in Juneau, the City and Chamber of Commerce of Haines, Craig, Sitka and Tenakee.

Department of Transportation and Public Facilities

POSITION PAPER

BILL NO: HB 175 APPROVED: [signature]

TITLE: An Act making an appropriation to the Alaska Marine Highway System Vessel Replacement Fund; and providing for an effective date.

DATE: March 7, 1991

In early 1990, the Alaska Marine Highway System commissioned a survey of the fleet in order to determine the level of investment necessary to maintain the ships in good condition over the next 15 years. The preliminary results show a demand for investment funds in excess of the historical allocation of federal funds. The capitalization of the vessel replacement fund will create an alternative funding source for the fleet, which will allow the Alaska Marine Highway System to continue to meet its mission of providing basic marine transportation to the coastal communities of the state. The Department of Transportation and Public Facilities supports the legislation.

The Alaska Marine Highway System Vessel Replacement Fund was created in 1990 for the purpose of financing the replacement and refurbishment of Alaska Marine Highway System vessels. The Alaska Marine Highway System consists of 8 vessels ranging in age from 14 to 28 years. Each vessel requires periodic refurbishment in order to maintain a safe and adequate level of service. This refurbishment includes all components of the vessels, including hotel and public areas, as well as major mechanical systems. In the last several years, vessel refurbishment projects have been primarily financed with federal highway funds. The system's share of the FHWA funds received by the state has been approximately $9 million a year.

For Further Information contact Katy McHugh at 465-3900.

AEL&P

ALASKA ELECTRIC LIGHT AND POWER COMPANY

(907) 586-2222
612 W. Willoughby Ave., Juneau, AK 99801-1798

February 26, 1991

The Honorable Walter Hickel
Governor
State of Alaska
P.O. Box A
Juneau, Alaska 99811

Dear Governor Hickel,

This is to express my strong support for an appropriation of at least $45 million in 1991 to the Alaska Marine Highway System vessel replacement fund.

The Marine Highway System is vital to all of Alaska, not just Southeast Alaska. It's fleet is aging rapidly. An opportunity exists <u>now</u> to put aside some of the windfall revenues coming to the State, in a manner which will spread some of the benefits over many years of service to all Alaskans.

Thank you for considering this very important appropriation.

Very truly yours,

James S. Webb
President

BCC: Representative
Fran Ulmer