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## PILOT HOUSE

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## Bill of Rights

*Amendment 1. Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof, or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.*

Joseph Story, Congressman and Professor of Law at Harvard, was appointed to the Supreme Court in 1811 by James Madison, the Father of the U.S. Constitution. He served on the Court for 34 years. Story's great work, Commentaries on the Constitution of the United States, is considered a classic of American jurisprudence. He was instrumental in establishing the illegality of the slave trade. He also convincingly argued that the United States of America was built on the principles of Christianity. In a speech at Harvard, Story stated bluntly:

*There never has been a period of history, in which the Common Law did not recognize Christianity as lying at its foundation.*

In his work, A Familiar Exposition of the Constitution of the United States, Justice Story had this to say about the purpose of the First Amendment:

*We are not to attribute this prohibition of a national religious establishment [in the First Amendment] to an indifference to religion in general, and especially to Christianity (which none could hold in more reverence than the framers of the Constitution)...*

*Probably, at the time of the adoption of the Constitution, and of the Amendment to it now under consideration, the general; if not the universal, sentiment in America was, that Christianity ought to receive encouragement from the State so far as was not incompatible with the private rights of conscience and the freedom of religious worship.*

*Any attempt to level all religions, and to make it a matter of state policy to hold all in utter indifference, would have created universal disapprobation, if not universal indignation.*

In other words, the purpose of the First Amendment was to protect a religious people from the government-not to protect the government from a religious people. It is perfectly all right, under the First Amendment, for the Government of the United States to favor Christianity over other faiths-so long as other faiths are not persecuted by the government, and so long as the national government does not attempt to set up a national church, such as the Anglican Church in England. In his Commentaries on the Constitution, Justice Story stated:

*It yet remains a problem to be solved in human affairs, whether any free government can be permanent where the public worship of God, and the support of religion, constitute no part of the policy or duty of the state in any assignable shape.*

In fact, in his commentary on the purpose of the First Amendment, Justice Story stated:  
*The real object of the First Amendment was not to countenance much less to advance Mohammedanism, or Judaism, or infidelity, by prostrating Christianity, but to exclude all rivalry among Christian sect [denominations] and to prevent any national ecclesiastical patronage of the national government.*



# PILOT RECLINER

## SC-100 PILOT RECLINER

### FEATURES:

Powder coated steel frame with recliner mechanism  
Molded foam seat cushion  
Molded foam arm rests  
Molded foam adjustable headrest  
Morbern Alante vinyl upholstery

### OPTIONS:

Stainless steel powder coated frame Power lumbar system  
Electric seat heating system Towel bar slide tracks  
Seat bottom skirts  
Rockwell 6-way power seat adjuster

### Leather Upholstery Options:

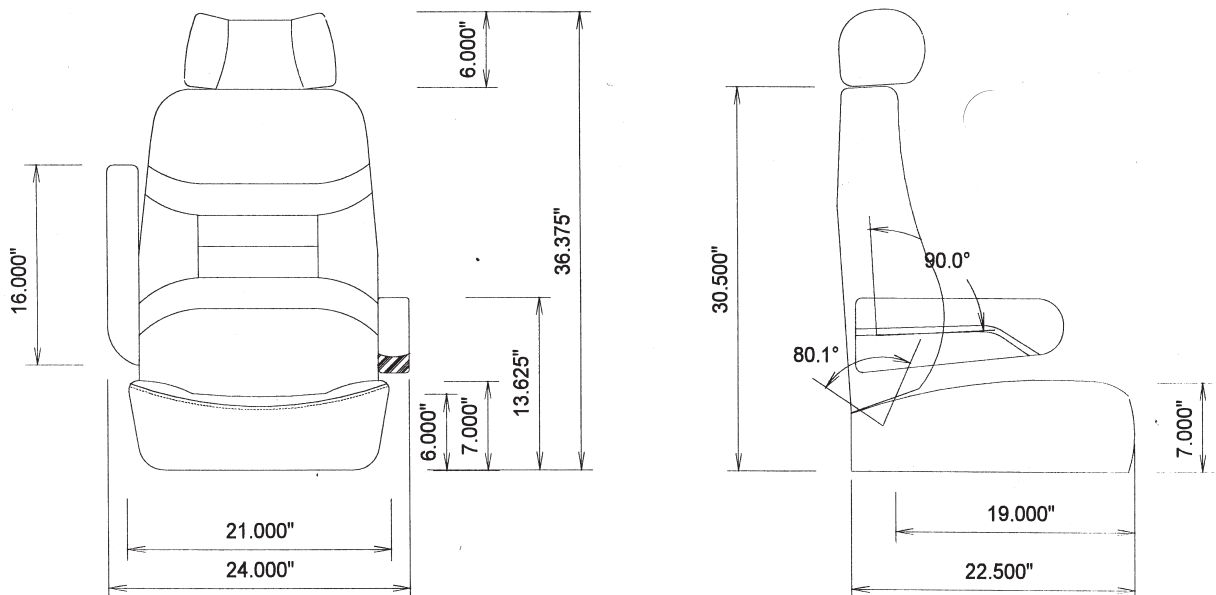
Full face leather with matching vinyl  
Perforated leather accents

### Exotic Skin Options:

Full quill South African ostrich accents  
North American alligator skin accents



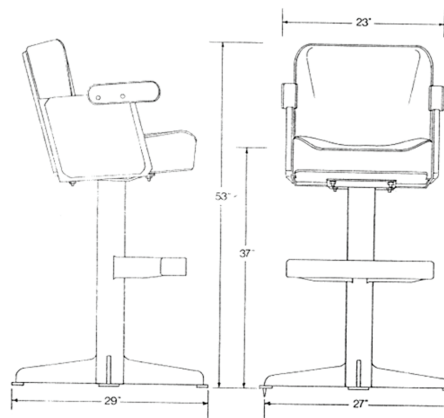
## SC-100 PILOT RECLINER



## STANDARD OFFSHORE PILOT CHAIR

### NO. EMS-2037

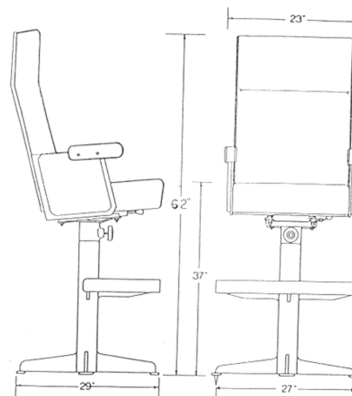
- An exceptional offering for the captain
- Not the usual helmsman seat, but an operator's chair: comfortable, custom designed
- Constructed of the finest materials available to withstand rugged offshore service
- Padding is highly resilient, fire retardant foam
- Upholstered in fire and mildew retardant 40 oz. marine grade vinyl of the finest quality
- Sturdy, all welded, corrosion resistant frames of marine grade aluminum alloy
- 31/2" fore and aft traverse adjustment
- Years of comfortable riding are built into this unit
- Safety belts optional at additional cost
- Boat seating of distinction



## DELUXE OFFSHORE PILOT CHAIR

### EMS-2037D

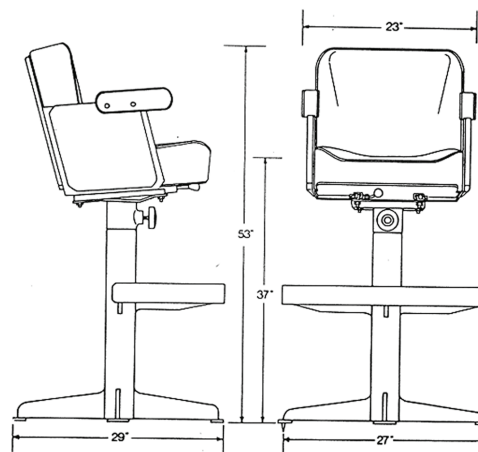
- Years of comfortable riding are built into this unit
- A luxurious offering for the captain
- Constructed of the finest materials available to withstand rugged offshore service
- Sturdy, all welded corrosion resistant frames of marine grade aluminum alloy
- 3-1/2" fore and aft traverse adjustments
- 360 swivel with positive lock
- More than the usual pilot house chair, this is for an operator: custom designed for comfort and ruggedness
- Padding is highly resilient, fire retardant foam With lumbar support for added comfort
- Upholstered in fire and mildew retardant 40 oz. marine grade vinyl of the finest quality
- Styling and comfort endorsed and used by many of today's workboat owners
- Safety belts optional at additional cost
- Boat seating of distinction



## STANDARD OFFSHORE PILOT CHAIR/ SWIVEL

### NO. EMS-2037S

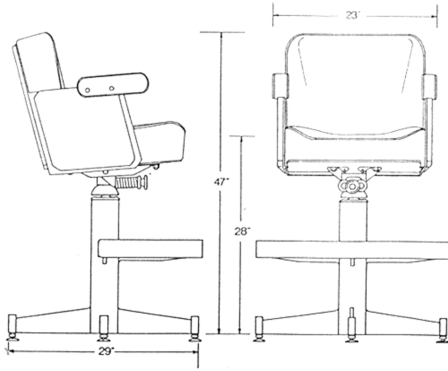
- A versatile chair for the captain
- Constructed of the finest materials
- Sturdy, all welded, corrosion resistant frames of marine grade aluminum alloy
- 3-1/2" fore and aft traverse adjustment
- 360° swivel with a positive lock
- Not the usual helmsmen seat, but an operator's chair, custom designed to withstand rugged offshore service
- Padding is highly resilient, fire retardant foam
- Upholstered in fire and mildew retardant 40 oz. marine grade vinyl of the highest quality
- Safety belts optional at additional cost
- Boat seating of distinction





## INLAND PILOT CHAIR

NO. EMS-2028



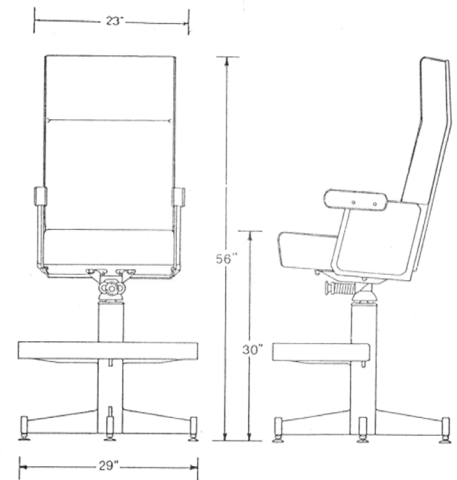
- Specialized for inland use
- A luxurious chair for the captain
- Constructed of the finest materials available
- Padding is highly resilient, fire retardant foam
- Upholstered in fire and mildew retardant 40 oz. marine grade vinyl of the finest quality
- Sturdy, all welded, corrosion resistant frames of marine grade aluminum alloy
- 360° swivel and rocking mechanism
- Floor glides are adjustable for accurate installation
- swivel casters optional at additional cost
- boat seating of distinction



## DELUXE HIGHBACK INLAND PILOT CHAIR

NO.EMS-2028D

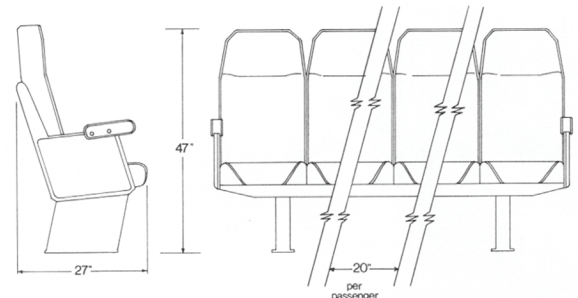
- Luxurious offering for the captain
- More than the usual pilot chair, this is for an operator: custom designed for comfort and ruggedness
- Years of comfortable riding are built into this unit
- Constructed of the finest materials available to withstand rugged inland service
- Sturdy, all welded, corrosion resistant frames of marine grade aluminum alloy
- Upholstered in fire and mildew retardant 40 oz. marine grade vinyl of the finest quality
- Padding is highly resilient, fire retardant foam with lumbar support for added comfort
- 360° swivel
- Styling and comfort endorsed and used by many of today's workboat owners
- Boat seating of distinction



## DELUXE PASSENGER SEATING

NO. EMS-D3

- Streamline seating, well suited for marine industry, excursion boats and public transportation
- Headrest allows extra support and safety, features that show you care about your passengers
- Sturdy, all welded, corrosion resistant frames of marine grade aluminum
- Padding is highly resilient, fire retardant foam
- Upholstered in fire and mildew retardant 40 oz. Marine grade vinyl of the finest quality
- Provides years of spacious and restful travel
- Styling and comfort endorsed by many of today's workboat owners
- Units available in singles, doubles, triples or Quads to fit space requirements
- Armrest optional at additional cost
- Boat seating of distinction

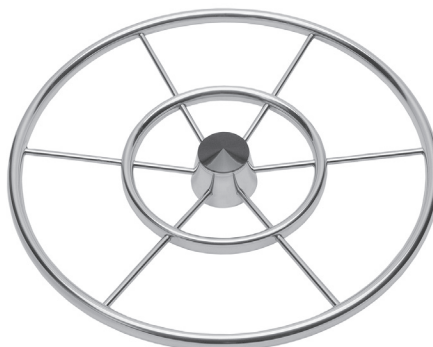


# Schmitt

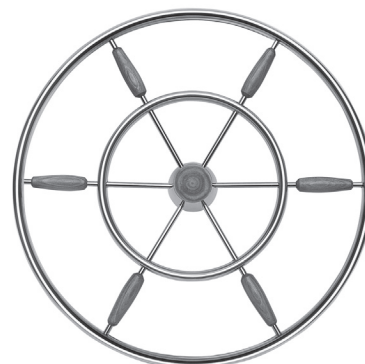
## MARINE STEERING WHEELS

### DESTROYER STYLE WHEELS

| <b>MODEL 110</b>   |            |                   |             |
|--|------------|-------------------|-------------|
| DOUBLE RING DESTROYER — BLACK CENTER CAP<br>HUB SIZE: 1"/FT TAPER (3/4" SHAFT) |            |                   |             |
| WHEEL<br>DIAMETER  | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER |
| 24"  | 3/8"       | 10                | 112-24-1-1  |



| <b>MODEL 120</b>  |            |                   |             |
|---|------------|-------------------|-------------|
| DOUBLE RING DESTROYER W/PAKKAWOOD GRIPS AND CAP<br>HUB SIZE: 1"/FT TAPER (3/4" SHAFT) |            |                   |             |
| WHEEL<br>DIAMETER   | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER |
| 24"   | 3/8"       | 10                | 122-24-1-1  |



### 6 SPOKE DESTROYER STYLE WHEELS



| <b>MODEL 150</b>  |            |                   |             |
|---|------------|-------------------|-------------|
| DESTROYER 6 SPOKE —<br>BLACK CENTER CAP<br>HUB SIZE: 1"/FT TAPER (3/4" SHAFT) |            |                   |             |
| WHEEL<br>DIAMETER   | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER |
| 11"   | 3/8"       | 10                | 152-11-1-1  |
| 15 1/2"   | 3/8"       | 10                | 152-16-1-1  |
| 15 1/2"   | 3/8"       | 22                | 152-16-2-1  |
| 18"   | 3/8"       | 10                | 152-18-1-1  |
| 20"   | 3/8"       | 10                | 152-20-1-1  |
| 22"   | 3/8"       | 10                | 152-22-1-1  |
| 24"   | 3/8"       | 10                | 152-24-1-1  |
| 28"   | 1/2"       | 10                | 153-28-1-1  |
| 30"   | 1/2"       | 10                | 153-30-1-1  |

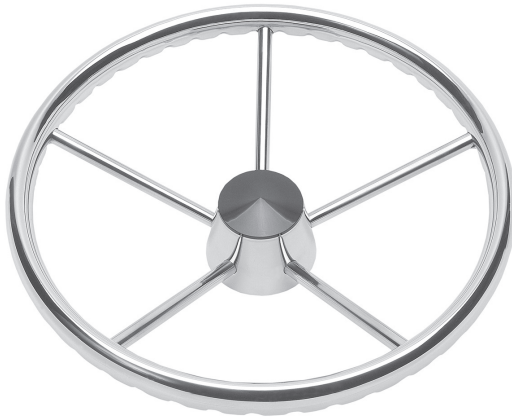
| <b>MODEL 150 —<br/>SPECIAL HUB REQUIREMENTS</b> |            |                   |             |
|---|------------|-------------------|-------------|
| DESTROYER 6 SPOKE - BLACK CENTER CAP            |            |                   |             |
| WHEEL<br>DIAMETER                               | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER |
| 11"   | 3/8"       | 10                | 152-11-1-X  |
| 15 1/2"   | 3/8"       | 10                | 152-16-1-X  |
| 15 1/2"   | 3/8"       | 22                | 152-16-2-X  |
| 18"   | 3/8"       | 10                | 152-18-1-X  |
| 20"   | 1/2"       | 10                | 153-20-1-X  |
| 22"   | 1/2"       | 10                | 153-22-1-X  |
| 24"   | 1/2"       | 10                | 153-24-1-X  |
| 28"   | 1/2"       | 10                | 153-28-1-X  |
| 30"   | 1/2"       | 10                | 153-30-1-X  |



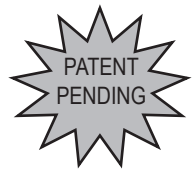
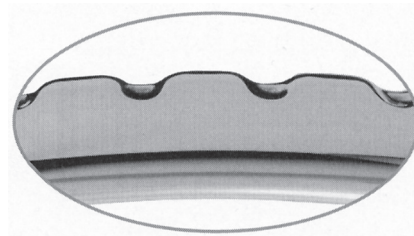
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## MARINE STEERING WHEELS

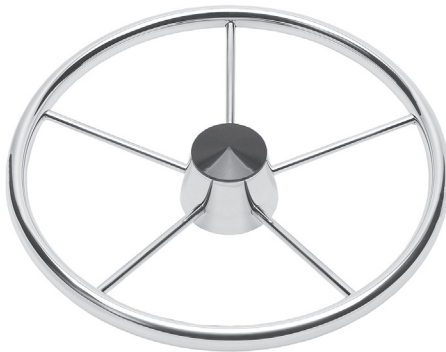
### 5 SPOKE DESTROYER STYLE WHEELS



| <b>MODEL 170 FINGER GRIP</b>   |            |                   |               |
|--|------------|-------------------|---------------|
| DESTROYER 5 SPOKE — FINGER GRIPS —<br>BLACK CENTER CAP<br>HUB SIZE: 1"/FT TAPER (3/4" SHAFT) |            |                   |               |
| WHEEL<br>DIAMETER  | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER   |
| 13 1/2"  | 1/2"       | 22                | 173-13-2-1-FG |
| 15 1/2"  | 1/2"       | 22                | 173-15-2-1-FG |



| <b>MODEL 170 FOAM GRIP</b>   |            |                   |               |
|--|------------|-------------------|---------------|
| DESTROYER 5 SPOKE — BLACK FOAM RIM —<br>BLACK CENTER CAP<br>HUB SIZE: 1"/FT TAPER (3/4" SHAFT) |            |                   |               |
| WHEEL<br>DIAMETER  | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER   |
| 13 1/2"  | 3/8"       | 22                | 172-13-2-1-F2 |
| 14"  | 3/8"       | 22                | 172-14-2-1-F2 |
| 15 1/2"  | 3/8"       | 22                | 172-15-2-1-F2 |



| <b>MODEL 170</b>   |            |                   |             |
|--|------------|-------------------|-------------|
| DESTROYER 5 SPOKE—STANDARD POLISHED RIM—<br>BLACK CENTER CAP<br>HUB SIZE: 1"/FT TAPER (3/4" SHAFT) |            |                   |             |
| WHEEL<br>DIAMETER  | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER |
| 13 1/2"  | 3/8"       | 22                | 172-13-2-1  |
| 14"  | 3/8"       | 22                | 172-14-2-1  |
| 15 1/2"  | 3/8"       | 10                | 172-15-1-1  |
| 15 1/2"  | 3/8"       | 22                | 172-15-2-1  |
| <b>MODEL 170 —<br/>SPECIAL HUB REQUIREMENTS</b>  |            |                   |             |
| DESTROYER 5 SPOKE — BLACK CENTER CAP   |            |                   |             |
| WHEEL<br>DIAMETER  | SPOKE SIZE | DEGREE OF<br>DISH | PART NUMBER |
| 15 1/2"  | 3/8"       | 10                | 172-15-1-X  |
| 15 1/2"  | 3/8"       | 22                | 172-15-2-X  |

## Mahogany Steering Wheel

Available in 24, 36 & 42 inch diameter  
24" has a 1" straight bore  
36" & 42" have 1 1/2" straight bore



**Think You're Having A Bad Day....** Check out these actual cases compiled from news headlines over the years.

- Fire authorities in California found a corpse in a burned-out section of forest while assessing the damage done by a forest fire. The deceased male was dressed in a full wet suit, complete with scuba tanks on his back, flippers, and face mask. A post-mortem test revealed that the man did not die from burns, but from massive internal injuries. Dental records provided a positive identification. Investigators then set about to determine how a fully-clad diver ended up in the middle of a forest fire. It was revealed that on the day of the fire, the man went diving off the coast, some 20 miles from the forest. The fire fighters, seeking to control the fire as quickly as possible, had called in a fleet of helicopters with very large dip buckets. Water was dipped from the ocean and emptied at the site of the forest fire. You guessed it. One minute our diver was making like Flipper in the Pacific, the next, he was doing the breast stroke in a fire dip bucket 300 feet in the air. Some days it just doesn't pay to get out of bed.
- **Still think you're having a bad day?** A man was working on his motorcycle on the patio, his wife nearby in the kitchen. While racing the engine, the motorcycle accidentally slipped into gear. The man, still holding onto the handlebars, was dragged along as it burst through the glass patio doors. His wife, hearing the crash, ran in the room to find her husband cut and bleeding, the motorcycle, and the shattered patio door. She called for an ambulance and, because the house sat on a fairly large hill, went down the several flights of stairs to meet the paramedics and escort them to her husband. While the attendants were loading her husband, the wife managed to right the motorcycle and push it outside. She also quickly blotted up the spilled gasoline with some paper towels and tossed them into the toilet. After being treated and released, the

man returned home, looked at the shattered patio door and the damage done to his motorcycle. He went into the bathroom and consoled himself with a cigarette while attending to his business. About to stand, he flipped the butt between his legs. The wife, who was in the kitchen, heard a loud explosion and her husband screaming. Finding him lying on the bathroom floor with his trousers blown away and burns on his buttocks, legs and groin, she once again phoned for an ambulance. The same paramedic crew was dispatched. As the paramedics carried the man down the stairs to the ambulance they asked the wife how he had come to burn himself. She told them. They started laughing so hard, one slipped, dropping the stretcher and dumping the husband out. He fell down the remaining stairs, breaking his arm.

- **Still having a bad day?** Just remember, it could be worse... The average cost of rehabilitating a seal after the Exxon Valdez oil spill in Alaska was \$80,000. At a special ceremony, two of the most expensively saved animals were being released back into the wild amid cheers and applause from onlookers. A minute later, in full view, a killer whale ate them both.
- **Still think you are having a bad day?** A woman came home to find her husband in the kitchen shaking frantically, almost in a dancing frenzy, with some kind of wire running from his waist towards the electric kettle. Intending to jolt him away from the deadly current, she whacked him with a handy plank of wood, breaking his arm in two places. Up to that moment, he had been happily listening to his walkman.
- **Still think you're having a bad day?** Two animal rights protesters were protesting at the cruelty of sending pigs to a slaughterhouse in Bonn, Germany. Suddenly, all two thousand pigs broke loose and escaped through a broken fence, stampeding madly. The two hopeless protesters were trampled to death.
- What? STILL having a bad day?? Iraqi terrorist Khay Rahnajet didn't pay enough postage on a letter bomb. It came back with "return to sender" stamped on it. Forgetting it was the bomb, he opened it and was blown to bits.



## SUGGESTIONS AND WARNINGS WHEN SELECTING A MECHANICAL STEERING SYSTEM

Selection of the appropriate mechanical steering system is an important factor for the safety and functionality of your boat.

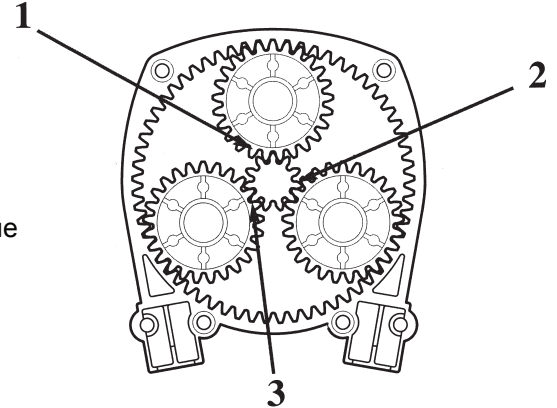
The combination of engine power, hull type and boat speed influence the correct selection of the steering system. The load on the steering system increases with the boat speed and engine power; the torque generated by the propeller rotation in high power outboard applications can make it hard to steer.

Big boats with displacement hulls and inboard or stern drive engines, can generate high rudder loads: in these cases a mechanical steering system will be inadequate and we suggest the use of a Hydraflex hydraulic steering system.

We always recommend consulting qualified personnel when selecting, installing and maintaining a steering system for your boat.

### ADVANTAGES OF A PLANETARY GEAR DESIGN

Ultraflex mechanical steering helms T71FC, T73NR FC as well as the dual cable versions and tilt wheel versions use a Planetary Gear Design. A Planetary Gear Design has three satellite gears that rotate on their axis and at the same time rotate around the central helm axis. This allows for equal distribution of engine torque over three points of the central gear, dividing and balancing the system loads. The benefits of this special design are increased system longevity, increased efficiency and less engine feedback compared to single pinion gear helms.



### THE IMPORTANCE OF A NON REVERSIBLE STEERING SYSTEM FOR INCREASED SAFETY

The steering system of a boat is the mechanism that determines the boat direction when the steering wheel is turned.

If, for any circumstance, the driver does not hold the wheel, it may occur a situation of danger caused by a sudden change of direction of the boat due to external forces (waves, currents, etc.) or internal forces such as the rotation of the outboard or stern drive engine originated by the way of rotation of the propeller.

Engine torque usually generates a load on the steering system that must be continually compensated for by the driver even when the boat is going straight. The additional effort by the driver to maintain a true course can often cause fatigue.

With **Ultraflex Non-Reversible steering** helms T73NR FC, T74NR FC, T83NR FC, T84NR FC the loads applied to the steering system are no longer a problem.

A special patented device allows the helm shaft to lock until turned by the driver, maintaining the boat direction and neutralizing the feedback loads on the steering cable.

This mechanism is engaged when the driver is not turning the wheel and is automatically disengaged as soon as the driver applies pressure on the wheel to change direction of the boat.

The Ultraflex **Non-Reversible** mechanism designed for mechanical steering systems makes driving a boat safer and easier.

### USE AND MAINTENANCE

The steering cable must be installed avoiding excessive and/or tight bends. This will provide the driver with easy handling at all speeds; reduce system inefficiency, and excess play in the system.




Marine corrosion may cause the materials to deteriorate affecting manoeuvring efficiency and in the worst case, system failure. By following the engine manufacturer specifications, the steering cable end fittings and the engine cable support must be cleaned and greased periodically; these simple operations minimize wear and corrosion in the system.

The steering cable must be regularly inspected. If steering becomes hard, inconsistent, cuts on the conduit surface are noticed, or any other component found damaged, the cable must be replaced immediately.

When storing your boat for an extended period of time we recommend removing the steering cable end fitting from its engine side support and cleaning it adequately.



## SELECTION OF STEERING SYSTEM AND CABLE LENGTH MEASUREMENT

| APPLICATION   | BOAT LENGTH       | STEERING SYSTEM                                    |
|---|-------------------|--|
| OUTBOARD  | up to 30' (9m)    | T71FC - T81FC<br>T73NR FC                          |
|  |                   | twin cable T72FC T82FC<br>T74NR FC - T84NR FC      |
| INBOARD   | up to 35' (10.5m) | T71FC - T81FC<br>T73NR FC - T83NR FC               |
|  |                   | twin cable T72FC<br>T82FC - T74NR FC<br>T84NR FC   |
| STERNDRIVE  | up to 35' (10.5m) | T71FC - T81FC -<br>T73NR FC - T83NR FC             |
|  |                   | twin cable T72FC -<br>T82FC - T74NR FC<br>T84NR FC |

Twin cable system are recommended for boats that exceed 50 mph. Always follow engine manufacturer's instructions.

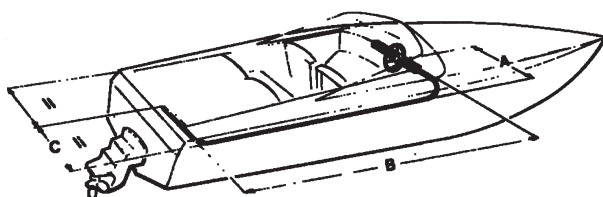
NOTE: sterndrive engines not equipped with power steering can create very high steering loads. Hydraflex hydraulic steering system is recommended for these type of boats.

- Speed, hull, horsepower, engine type, displacement and size are major factors in boat performance and handling characteristics. The above selection guide should be used as a general reference only.
- One of the major factors in selecting a steering system is proper cable length. Due to specific routing in each boat, these

approximate lengths will vary. Final selection should be made with the assistance of a qualified technician.

- Ultraflex mechanical steering systems should not be used on boats equipped with engines that exceed the maximum horsepower rating of the boat.

## HOW TO MEASURE FOR NEW STEERING CABLE INSTALLATION



Add. A + B + C and subtract 10 cm for each 90° bend in the cable.  
For installation through the engine tilt tube, add 30,5 cm (1 ft) to the measure calculated above.  
To order in foot length, divide for 30,5 and round off to next whole foot.

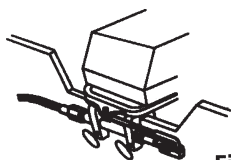


Fig. 1

**TILT TUBE MOUNTING - Fig. 1**  
Example (dimensions in cm):  
 $A (50) + B (250) + C (80) = 380$   
 $- 20 \text{ for two } 90^\circ \text{ bends} = 360 + 30.5$   
for a thru-tube installation = 12.8 ft round off to 13 ft.

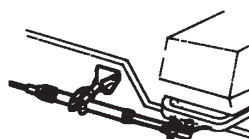


Fig. 2

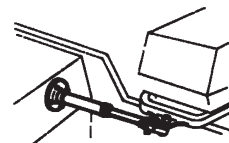
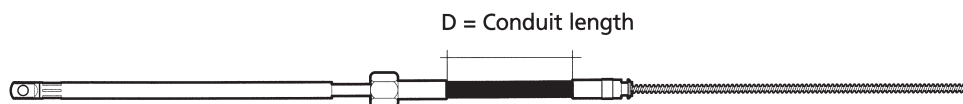


Fig. 3







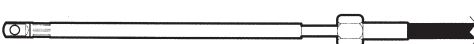



**TRANSOM SUPPORT OR SPLASHWELL MOUNTING - Fig. 2-3**  
Example (dimensions in cm):  
 $A (50) + B (250) + C (80) = 380 - 20 \text{ for two } 90^\circ \text{ bends} = 360$   
 $30.5 = 11.8 \text{ ft round off to } 12 \text{ ft.}$

## HOW TO MEASURE FOR REPLACEMENT STEERING CABLES



**ORDER LENGTH:** "D" dimension + 22" and round up to the next whole foot  
Example:  $D = 120" + 22" = 142" (11'8")$ . Round up to 12 ft.

**REPLACEMENT  
STEERING  
CABLES**

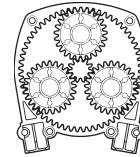
| ULTRAFLEX<br>REPLACEMENT CABLE  | STEERING HELM   | ADAPTOR<br>REQUIRED  |
|---|---|--|
| <b>M55</b><br><br>    | P15 - P22<br><br>Teleflex® ATB RACK -<br>SSC122   | none<br><br>M55 AD   |
| <b>M66</b><br><br>    | T71FC - T72FC<br>T73NR FC - T74NR FC<br>T81FC - T82FC<br>T83NR FC - T84NR FC<br>Safe - TQC®/NFB®<br>Teleflex® - D290 Morse®<br><br>Ultraflex year 2001<br>and prior:<br>T71 - T72 - T73NR<br>T74NR - T81 - T82<br>T83NR - T84NR | none<br><br><br><br><br><br>K66 - 38432Q  |
| <b>M47</b><br><br> | Ultraflex year 2001<br>and prior:<br>T71 - T72 - T73NR<br>T74NR - T81 - T82<br>T83NR - T84NR<br><br>T71FC - T72FC<br>T73NR FC - T74NR FC<br>T81FC - T82FC<br>T83NR FC - T84NR FC<br>D290 Morse®                                 | none<br><br><br><br>K46-35679L          |
| <b>M86</b><br>   | UNIVERSAL RACK<br>CABLE replaces Morse®<br>Command 200 and<br>Teleflex® "THE RACK"<br>SSC-124 steering cables<br><br>NOTE: Will not work with dual cable helms  | none   |
| <b>M48 + M47D</b><br>  | Dual station steering<br>systems:<br>T71<br>Safe - T® Big-T®<br>Teleflex®   | none   |

Part numbers for ordering:

|          |                      |
|----------|----------------------|
| M55 XLL  | LL = Length of cable |
| M66 XLL  | LL = Length of cable |
| M47 XLL  | LL = Length of cable |
| M86 XLL  | LL = Length of cable |
| M48 XLL  | LL = Length of cable |
| M47D XLL | LL = Length of cable |

## ROTECH AND ACCURA PACKAGED STEERING SYSTEMS

FEATURING  
PLANETARY GEAR  
DESIGN



### ULTRAFLEX ROTARY STEERING SYSTEM PACKAGED IN A BOX

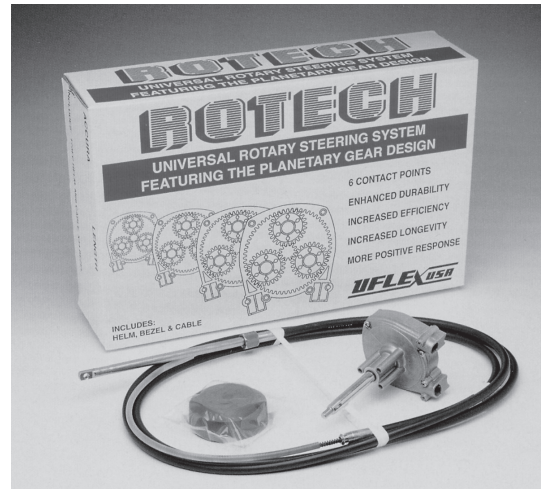
A convenient kit form, especially suitable as replacement steering, that includes helm, bezel and cable. The cable is available in 1-ft increments from 8 to 20 feet (specify cable length when ordering)

The wheel is not included

#### ROTECH

**ROTECH - I**      XLL - LL= Length  
**T 71FC**          - helm  
**X 34**            - 90° bezel  
**M 66**            - steering cable

**ROTECH - II**    XLL - LL= Length  
**T72FC**          - helm-dual  
**X 34**            - 90° bezel  
**M 66**            - 2 steering cables



#### ACCURA

**ACCURA - I**      XLL - LL= Length  
**T73NR FC**        - helm  
**X34**            - 90° bezel  
**M66**            - steering cable

**ACCURA - II**    XLL - LL= Length  
**T74NR FC**        - helm - dual  
**X34**            - 90° bezel  
**M66**            - steering cable

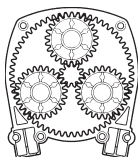


#### **BRAINTEASERS**

- 1 Two men were playing checkers. Each played five games and each won the same number of games. No draws. How can this be?
- 2 You have two coins in your hands equaling 55 cents. One of them is not a nickel. What are the coins?
- 3 It is a scientific fact that a person eats over an inch of dirt at every meal. How is this possible?
- 4 Jeff bought a word processor small enough to fit in his pocket. It can add, multiply, subtract, divide, and write in all languages. It has a delete device that will correct any error, and no electricity is required to operate it. Amazingly, it costs only 12 cents. How can it be so cheap?

1 They've got different partners.  
2 A 50-cent piece and a nickel. (Only one of them is not a nickel.)  
3 The Earth is always under you, so you are eating over dirt?  
4 His new computer/word processor is a pencil.

ANSWERS



## FEATURING PLANETARY GEAR DESIGN

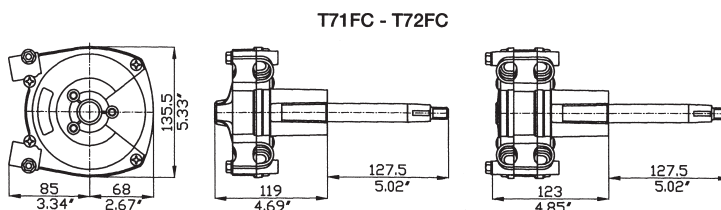
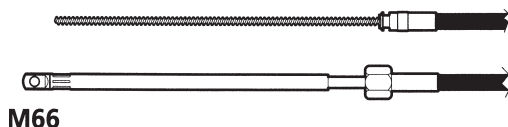
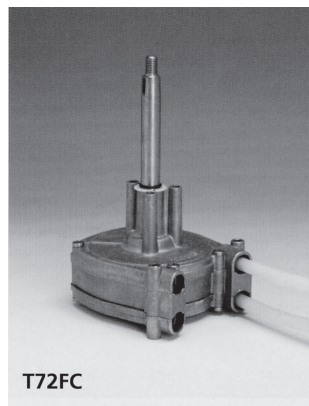
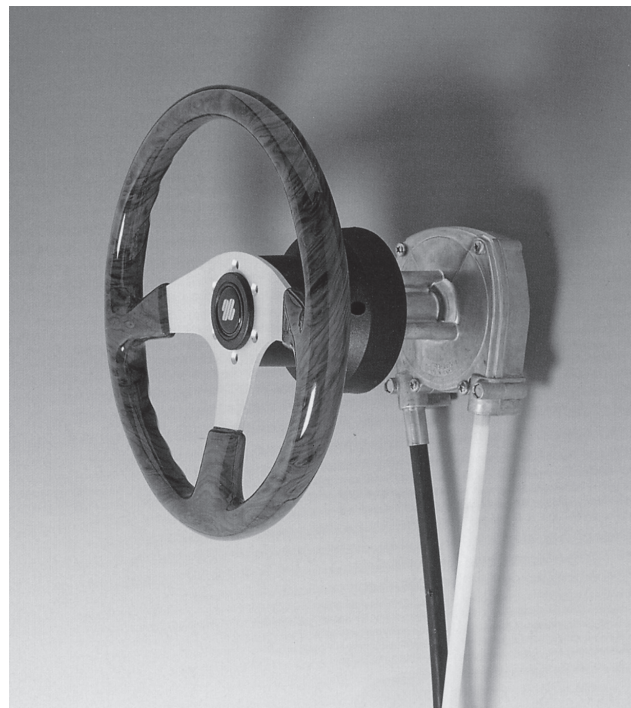
### T71FC AND T72FC ROTARY STEERING SYSTEMS

#### A COMPLETE STEERING SYSTEM CONSISTS OF:

- Steering helm:  
T71FC - 38867 H - single cable steering helm  
T72FC - 38868 K - dual cable steering helm
- Mounting bezel:  
X34 - 36654 B - 90° mounting  
X35 - 36655 C - 20° mounting
- Steering cable: M66 (Note: two M66 are needed with the T72FC system)
- Optional steering wheel
- Engine connection kits

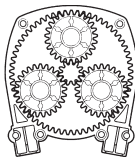
#### FEATURES AND TECHNICAL SPECIFICATIONS

- New fast connect system
- Corrosion resistant materials
- Particularly suitable where clearance is limited
- Optional 90° or 20° installation
- Lock-to-lock steering wheel turns: approx. 3.8
- Stroke: 9" (228 mm)
- Maximum allowable steering wheel diameter: 16" (406 mm)
- Minimum steering cable bend radius: 7.9" (200 mm)
- Minimal feedback
- Compact for mounting
- Available in package with Rotech (see prev. page)
- Exceeds EN 28848 safety standards
- Exceeds ABYC P17 safety standards
- T71FC and T72FC steering systems should not be used on boats equipped with engines that exceed the maximum horsepower rating of the boat
- For boats faster than 50 mph the twin cable steering system T72FC is recommended





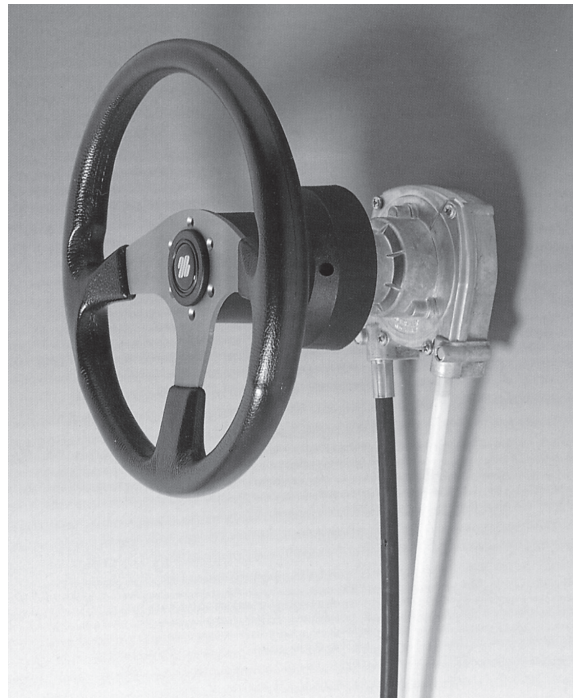
FEATURING  
PLANETARY GEAR  
DESIGN



## T73NR FC AND T74NR FC NON-RE-VERSIBLE STEERING SYSTEMS

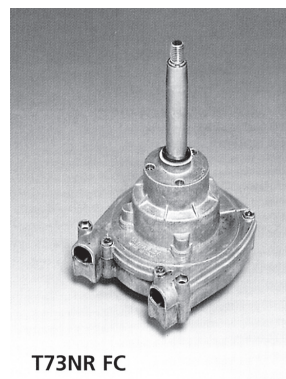
### A COMPLETE STEERING SYSTEM CONSISTS OF:

- Steering helm:  
T73NR FC - 38869 M - single cable steering helm  
T74NR FC - 38870 W - dual cable steering helm
- Mounting bezel:  
X34 - 36654 B - 90° mounting  
X35 - 36655 C - 20° mounting
- Steering cable: M66 (Note: two M66 are needed with the T74NR FC system)
- Optional steering wheel
- Engine connection kits

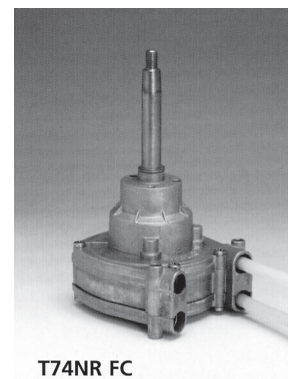


- Fast connect system
- Patented non-reversible mechanism: it eliminates the continuous load on the operator caused by the propeller torque making steering easy and safe.
- Ideal for larger outboards and surfacing propellers.
- Compact rotary helm unit: the central location of the steering shaft makes these systems the most compact in their class. Most suitable where clearance is limited. Standard 3/4" tapered shaft.
- Made exclusively in corrosion resistant materials.
- Lock-to-lock steering wheel turns: approx 3.8
- Maximum allowable steering wheel diameter: 16" (406 mm)
- Minimum steering cable bend radius: 7.9" (200 mm)
- Available in package with Accura (see page 8)
- Exceeds ABYC P17 safety standards
- T73NR FC and T74NR FC steering systems should not be used on boats equipped with engines that exceed the maximum horsepower rating of the boat.

For boats faster than 50 mph the twin cable steering system T74NR FC is recommended



T73NR FC



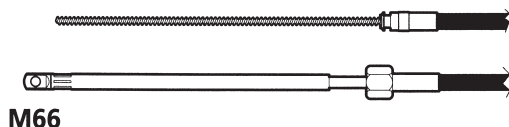
T74NR FC



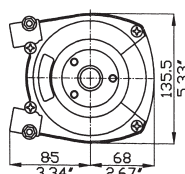
X34



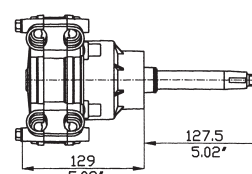
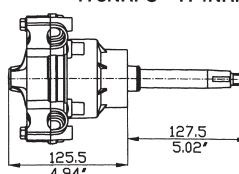
X35



M66



T73NRFC - T74NRFC





## SINGLE LEVER TOP MOUNT CONTROLS

Single lever / dual action control to operate both throttle and shift.

Suitable for any type of boats with outboard, inboard or I/O power plants.

### FEATURES

- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling
- Made of chrome plated marine aluminum
- Pull-out handle disengages shift for warm-up
- Neutral safety switch **X43** - 38160 L prevents in-gear starting
- Built-in friction to avoid throttle creep
- For use with Ultraflex C2, C8, Czero and all 33C style engine control cables
- Exceeds EN 11547 standards when X43 safety switch is installed

### MODELS

**B103** - 37923 K

Single lever control for one engine

**B104** - 37924 L

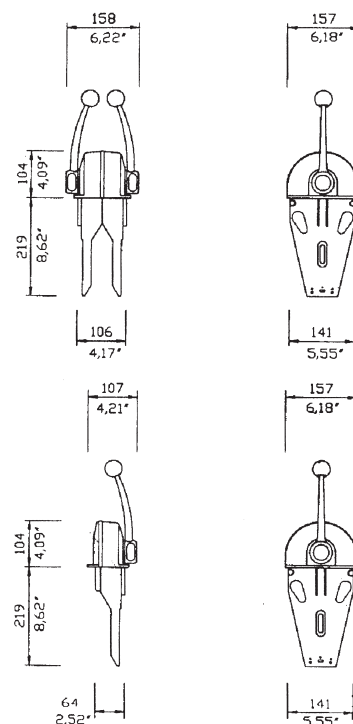
Single lever control for two engines

**B1035** - 39354 G

Single lever control for one engine - Silver knob

**B104S** - 39355 J

Single lever control for two engines - Silver knobs



### The Bum

A bum, who obviously is down on his luck, approaches a well-dressed gentleman on the street. "Hey, Buddy, can you spare \$2.00?" The welldressed gentleman responds, "You're not going to spend it on liquor, are you?" "No, sir, I don't drink," retorts the bum. You're not going to throw it away in some craps game, are you?" asks the gentleman. "No, way, I don't gamble," answers the bum. "You wouldn't waste the money at a golf course for greens fees, would yon?" asks the man. "Never," says the bum, "I don't play golf." The man asks the bum if he would like to come home with him for a home cooked meal. The bum accepts eagerly. While they are heading for the gentleman's home, the bum's curiosity gets the better of him. "Isn't your wife going to be angry when she sees a guy like me at your table?" "Probably," says the man, "but it will be worth it. I want her to see what happens to a guy who doesn't drink, gamble or play golf!"

## SINGLE LEVER TOP MOUNT CONTROLS

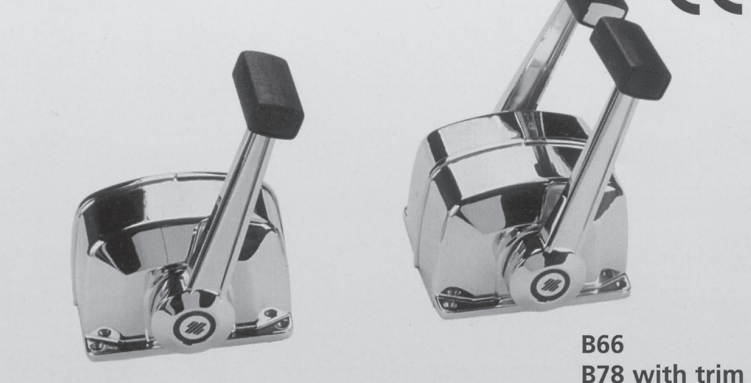
Single lever / dual action control to operate both throttle and shift.

Suitable for any type of boats with outboard, inboard or I/O power plants.

### FEATURES

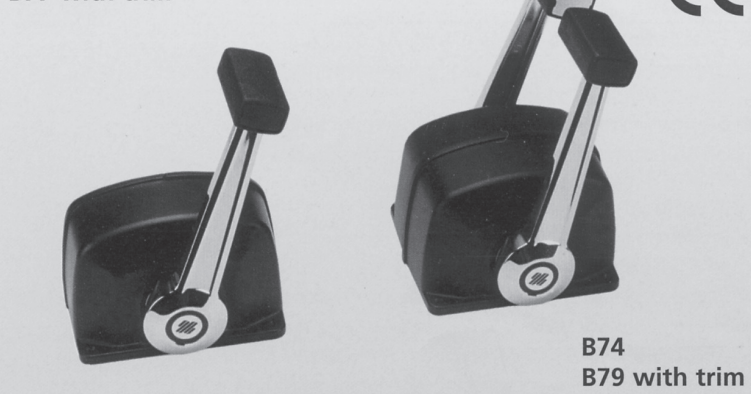
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling
- Made of marine aluminum, chrome plated or powder coat finish
- Pull-out handle disengages shift for warmup
- Neutral safety switch X12 - 34543 Q prevents in-gear starting
- Power trim switch conveniently located in the handle grip enables for easy tilting of the engine
- For use with:
  - All Ultraflex control cables except C22 and C4
  - Mercury® \ current OMC® \ Yamaha® \ Suzuki® Honda® \ Volvo® style cables
  - 33C style cables
- Ultraflex C5, C16 and Mercury® cables require K35 kit - 34730 U
- Exceeds EN 11547 standard when X12 safety switch is installed

B65  
B76 with trim



B66  
B78 with trim

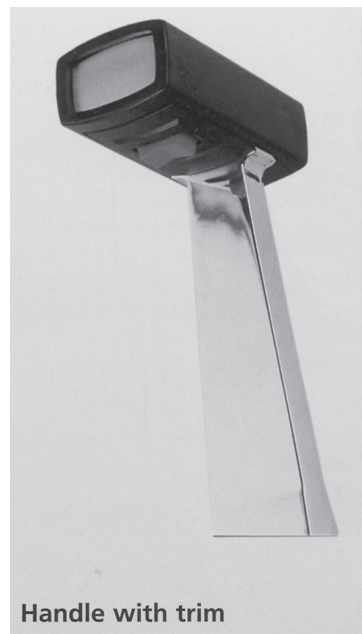
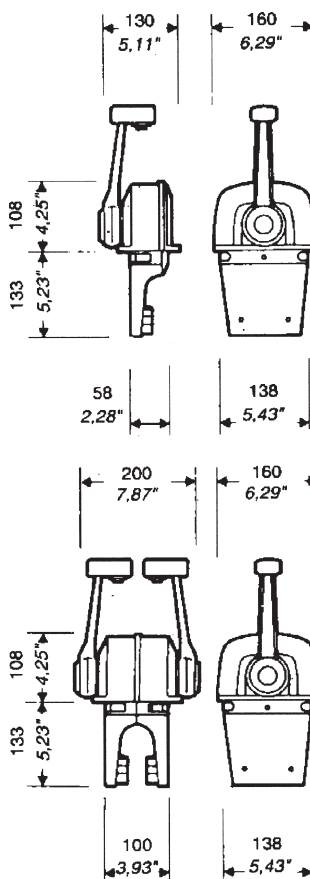
B73  
B77 with trim



B74  
B79 with trim

### MODELS

- |               |   |
|---------------|---|
| B65 - 34731 V | Single lever control for one engine, chrome plated                                |
| B76 - 35312 E | Single lever control for one engine, chrome plated, with trim.                    |
| B66 - 34732 W | Single lever control for two engines, chrome plated                               |
| B78 - 35314 G | Single lever control for two engines, chrome plated, with trim.                   |
| B73 - 35007 T | Single lever control for one engine, black dome, chrome plated lever.             |
| B77 - 35313 F | Single lever control for one engine, black dome, chrome plated lever, with trim   |
| B74 - 35008 B | Single lever control for two engines, black dome, chrome plated lever.            |
| B79 - 35315 H | Single lever control for two engines, black dome, chrome plated lever, with trim. |



Handle with trim

## **SINGLE LEVER** **SIDE MOUNT CONTROLS**

Single lever / dual action control to operate both throttle and shift.

Suitable for any type of boats with outboard, inboard or I/O power plants.

### **FEATURES**

- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling
- Can be installed horizontally or vertically, on the starboard or port side of the boat The lever assembly is made of painted marine aluminum
- Provided with a brake tension release system adjustable from outside
- Pull-out handle disengages shift for warm-up Neutral safety switch **X12** - 34543 Q or X50 - 38817 S (for B184M) prevents in-gear starting
- All models are provided with positive lockin neutral to prevent accidental gear engagement
- B184 model is provided with a power trim switch conveniently located in the handle grip that enables for easy tilting of the engine
- For use with:
  - All Ultraflex control cables except C22 and C4 - Mercury® \ current OMC® \ Yamaha® \ Suzuki® Honda® \ Volvo® style cables
  - 33C style cables
- Ultraflex C5 and C16 and Mercury® cables require **K35** - 34730 U connection kit Exceeds EN 11547 standards when X12 or X50 safety switch is installed

### **MODELS**

#### **B183 - 38945 B**

Provided with a positive lock-in neutral B184 - 38946 D

Provided with a positive lock-in neutral and trim switch

#### **B85 - 35682 I**

Standard model, smooth design for use on sailboats. Provided with a positive lock-in neutral.

#### **B184Merc - 38816 P**

For MERCURY® or MERCRUISER® engines. It includes **X50** - 38817 S neutral safety switch for trim and tilt functions and **K35** - 34730 U connection kit for Mercury® cables.



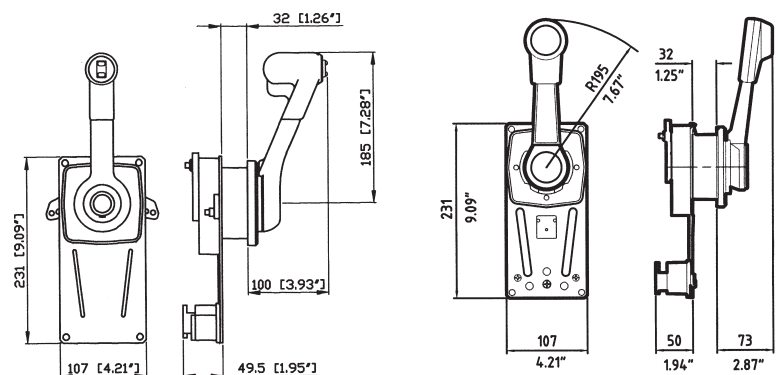
**B183**



**B184**



**B85**



**B183**  
**B184/B184Merc**

**B85**



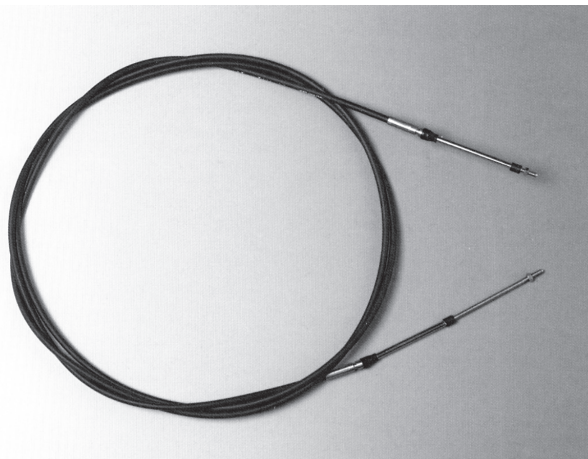
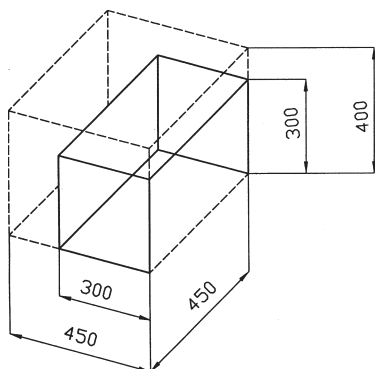
# CZERO HIGH EFFICIENCY AND FLEXIBILITY ENGINE CONTROL CABLE

**UFLEX USA**

## FEATURES AND PERFORMANCE

- Suitable for outboard - inboard and stern-drive engines and all the Ultraflex controls.
- High efficiency for smooth operation.
- High flexibility for reduced bend radius. Ideal for long complex cable routings.
- Maintenance free.
- Stainless steel cable end fittings 10/32 UNF
- High resistance blue outer jacket against abrasion, UV and chemicals.

- Reduced dimension of the packaging (50% reduced volume compared to standard cables).



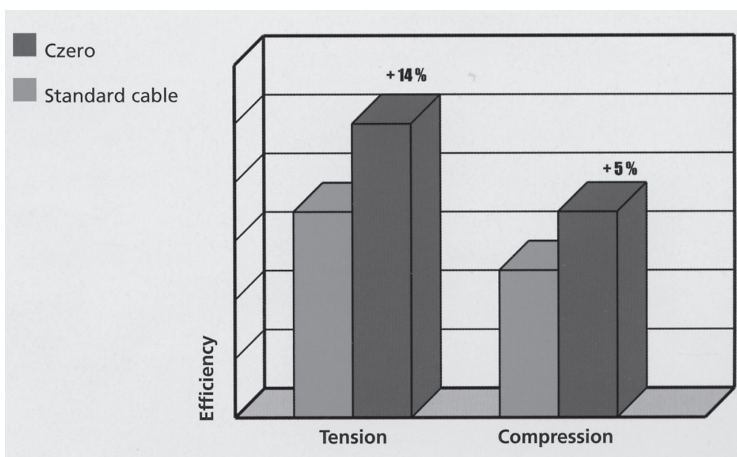
**CZERO**  
ZERO FRICTION CONTROL CABLE



## CZERO - EFFICIENCY COMPARISON TESTS

Tests configuration:  
3 bends at 90° - 110 N load

**NOTE:** standard cable figures refer to average values obtained from samples bought from aftermarket sources.



## ENGINE CONTROL CABLES

FOR NEW INSTALLATION, measure A + B distance from the control along an unobstructed cable routing to clutch and / or throttle connection. Round this dimension off to the next whole foot: you will have your cable length.

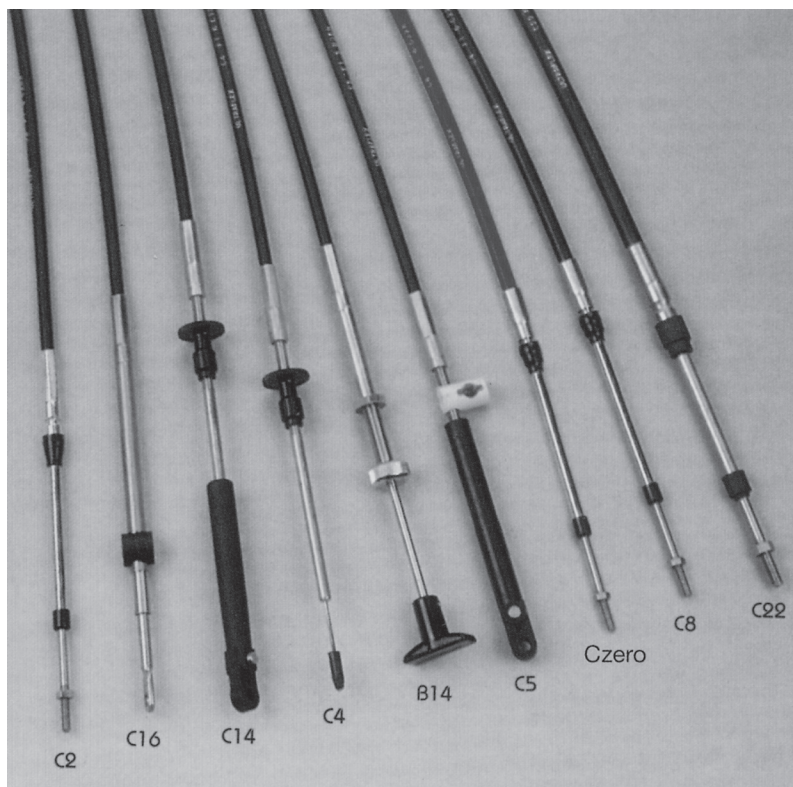
We recommend that the cable bends have a minimum radius of about 8" (200 mm).

For outboard engine installations, it is necessary to add three feet to the obtained length, in order to allow the engine movement.

To determine the needed length of the REPLACEMENT CABLE, measure it from tip to tip.

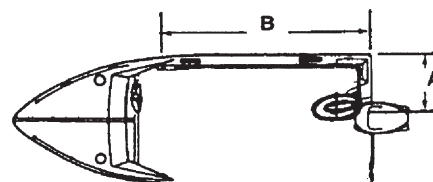
When ordering, specify the cable length in feet, rounding the dimension off to the next whole value.

If any kit is required to complete the cable connection, consult the appropriate section in this catalog.



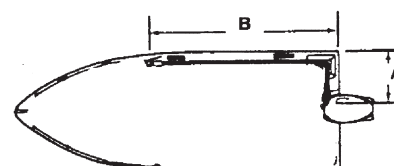
### OUTBOARD

$$A + B + 3' (90 \text{ cm}) = L$$



### INBOARD/STERNDRIVE

$$A + B = L$$



### CONTROL CABLE CROSS REFERENCE

| ULTRAFLEX | TELEFLEX® PART#                  | MORSE® PART#             | APPLICATION   |
|-----------|----------------------------------|--------------------------|---|
| C2        | UNIVERSAL CABLE CC172            |                          | YAMAHA®, SUZUKI®, HONDA®, NISSAN®, TOHATSU®, SELVA® |
| C8        | MIRACABLE CC330<br>PREMIUM CC199 | 33C RED JACKET 32377-003 | YAMAHA®, SUZUKI®, HONDA®, NISSAN®, TOHATSU®, SELVA® |
| CZERO     | TFXTREME CC223                   | 33C SUPREME 301947-003   | YAMAHA®, SUZUKI®, HONDA®, NISSAN®, TOHATSU®, SELVA® |
| C5        | 600A CC179                       | TYPE KM 637323           | MERCURY®, MERCRUISER®, MARINER® OVER 50 HP          |
| C4        | 400 TYPE CC170                   | TYPE O 48296             | PRE 1979 OMC®, EVINRUDE®, JOHNSON®                  |
| C14       | 479 TYPE CC205                   | TYPE OS 302029           | 1979 TO DATE OMC®, JOHNSON®, EVINRUDE®              |
| C16       | 630 TYPE CC210                   |                          | MARINER® UP TO 50 HP                                |
| C25       | CC214                            | TYPE OC 310048           | VOLVO® WITH OMC® CONTROLS                           |
| C22       | STANDARD<br>4300 TYPE CC193      | 43C REDLINE 65835-003    | HEAVY DUTY APPLICATIONS INBOARDS AND JETS           |
| C23 BC    | BULKHEAD<br>4300 TYPE CC192      | 43BC REDLINE 46348-003   | HEAVY DUTY APPLICATIONS INBOARDS AND JETS           |



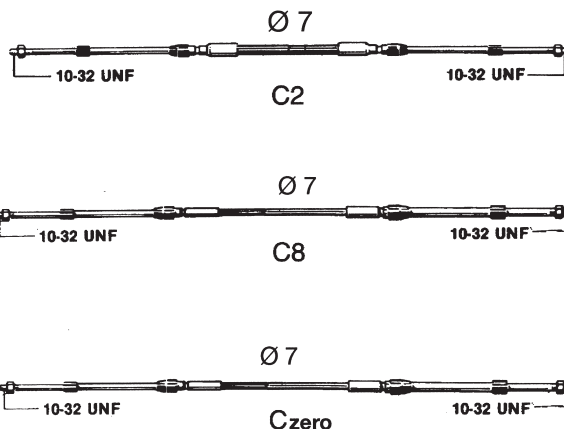
## ENGINE CONTROL CABLES

- C2** Stroke: 3.4" ( 87 mm)  
For use with inboard, sterndrive and outboard engines with appropriate accessories.
- C8** Stroke: 3.4" ( 87 mm)  
For inboard, sterndrive, outboard engines, with appropriate accessories.
- Czero** Stroke: 3.4" ( 87 mm)  
For inboard outboards, inboards and outboards.  
Ideal for high performance applications and long cable runs and complex routings. Blue colour jacket.
- C4** Stroke: 3.1" (80 mm)  
For Johnson®, Evinrude®, OMC® engines manufactured before 1979.
- C14** Stroke: 3" (75 mm)  
For Johnson®, Evinrude®, OMC® engines manufactured after 1979.
- C5** Stroke: 3.75" (95 mm)  
For Mercury® and Mercruiser® engines and 1993 to date Force Mariner®.
- C16** Stroke: 3.1" (80 mm)  
For Mariner engines up to 37 kW (50hp) **C25** Stroke: 3.1" (80 mm)  
For Volvo® engines using OMC® top mount controls.
- C22** Stroke: 3.1" (80 mm) Stainless steel clamp fittings. Recommended for heavy duty applications.
- C23BC** Stroke: 3.1" (80 mm)  
Bulkhead mount 4300 type cable  
Stainless steel clamp fitting and bulkhead fitting recommended for heavy duty applications.
- B14** Stroke: 2.8" (70 mm)  
Designed for throttle, fuel shut-off and other applications. Supplied with L13 and L14 clamp and shim.

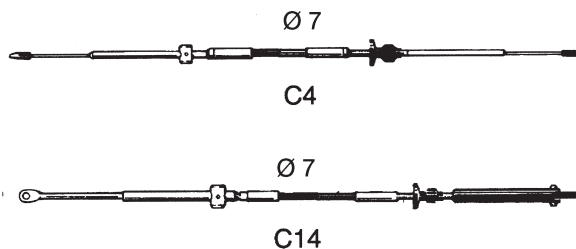
Part number for ordering:

Example: C2 XLL - LL = Length

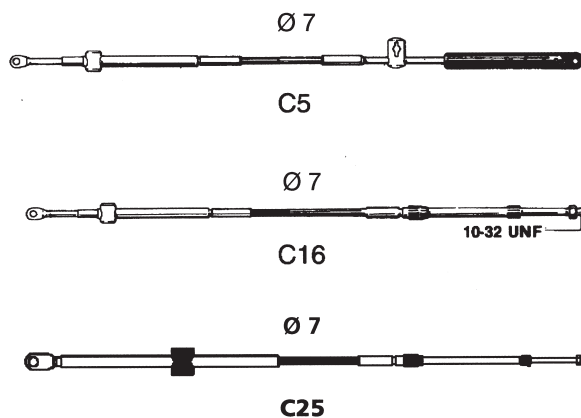
## UNIVERSAL 3300 STYLE CABLES



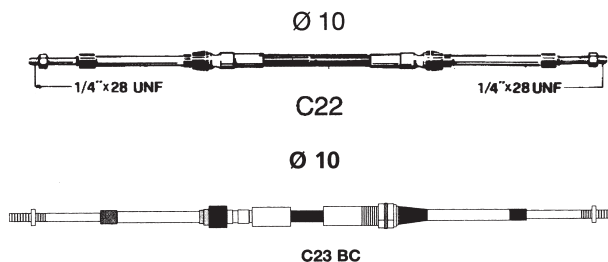
## OMC® - JOHNSON® - EVINRUDE® CABLES



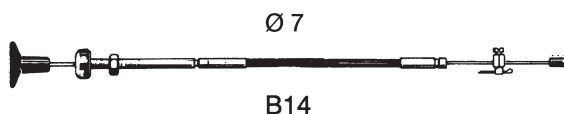
## MERCURY® - MERCUISER® - MARINER® - VOLVO® CABLES



## UNIVERSAL 4300 STYLE CABLES



## ENGINE STOP CABLE



## TWO LEVER TOP MOUNT CONTROLS

### L2 - 30324 D

Cable clamp block

### L3 - 30325 E

Shim and clamp block.

Fits C2, C8, Czero and all 33C style cables.

### L7 - 38078 U

Ball joint 10-32 UNF.

Stainless steel, fits C2, C8, Czero and all 33C style cables.

**L12** - 30334 F Cable end fitting. Fits C2, C8, Czero and all 33C style cables.

### L13 - 30335 G

Stop collar. Fits C4 and B14 cables.

### L14 - 30336 H

Cable clamp block.

Fits C2, C8, Czero and all 33C style cables.

### L25 - 31906 D

Clevis 10-32 UNF.

Fits C2, C8, Czero and all 33C style cables.

### L26 - 33517 N

Clevis 1/4" x 28 threaded. Fits C22 and 4300 series cables.

### K56 - 39237 C

Adapts C2, C8, Czero and all 33C style cables for use with Mercury engines.

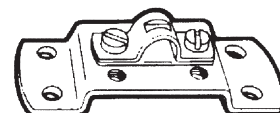
### K57 - 39238 E

Adapts C2, C8, Czero and all 33C style cables for use with Johnson® / Evinrude® engines.

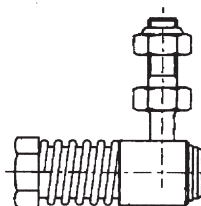
L2



L3



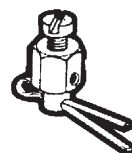
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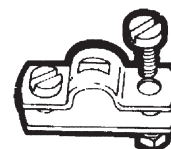
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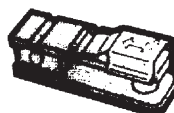
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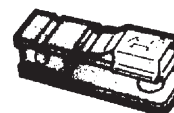
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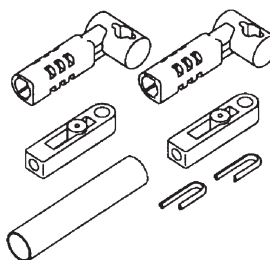
L25



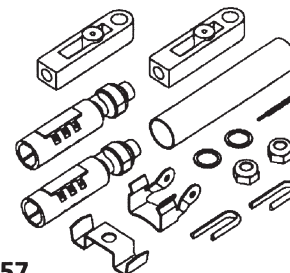
L26



K56



K57



## GRAVE MATTERS

If you're dead, you're history. Here are some not-very-grave epitaphs from around the world.

Beneath this stone, a lump of clay,  
Lies Uncle Peter Dan'els,  
Who, early in the month of May,  
Took off his winter flannels.

She always said her feet were killing her,  
but nobody believed her.

Once I wasn't  
Then I was  
Now I ain't again.  
Looked up the elevator shaft to see if the car

was on the way down. It was.

He valued only what the world held cheap  
(Refused to work, from laziness and  
pride)

Dreams were his refuge and he wel-  
comed sleep  
(He failed in business, took to drink and  
died).

# STEEL & COMMERCIAL BOAT COMPASSES



HB-845

BRACKET MOUNT, 3  $\frac{3}{4}$ " DIAL  
steel and commercial vessels larger than 20 feet  
HELMSMAN™ HB-845 WITH STEEL BOAT  
QUADRANTAL CORRECTORS

Dial Size/Design 3  $\frac{3}{4}$ " (57mm)/Flat-Card Dial  
Night Lighting 12V Green/24V or 32V by order  
Overall Dimensions 12" x 6  $\frac{1}{8}$ " (305mm x 157mm)  
Base 4  $\frac{3}{8}$ " (111mm)  
Warranty 5-Year  
Approx. Shipping Wt. 6 lb. (2.72kg)  
Protective Cover Model No. H-741-C



B-200P

BINNACLE MOUNT, 4  $\frac{1}{2}$ " DIAL  
steel and commercial vessels larger than 20 feet  
NAVIGATOR™ B-200P WITH STEEL BOAT  
QUADRANTAL CORRECTORS

Dial Size/Design 4  $\frac{1}{2}$ " (114mm)/Flat-Card Dial  
Night Lighting 12V Green/24V or 32V by order  
Overall Dimensions 17  $\frac{1}{4}$ " x 6  $\frac{1}{8}$ " (438mm x 157mm)  
Base 7  $\frac{1}{4}$ " (184mm)  
Warranty 5-Year  
Approx. Shipping Wt. 10 lb. (4.5kg)  
Protective Cover Model No. N-203-C



D-5-S

BINNACLE MOUNT, 5" & 6" DIAL  
steel and commercial vessels larger than 20 feet  
GLOBEMASTER® D-5-S & D-6-S WITH STEEL  
BOAT QUADRANTAL CORRECTORS

|                      | D-5-S                                      | D-6-S  |
|----------------------|--|--|
| Dial Size/Design     | 5" (127mm)                                 | 6" (152mm)   |
| Night Lighting       | 12V Green/24V or 32V by order              |  |
| Overall Dimensions   | 22" x 8 $\frac{3}{4}$ "<br>(556mm x 223mm) | 23 $\frac{3}{4}$ " x 10 $\frac{1}{4}$ "<br>(603mm x 260mm) |
| Base                 | 7 $\frac{1}{8}$ " (181mm)                  | 8 $\frac{3}{16}$ " (209mm)                                 |
| Warranty             | 5-Year                                     | 5-Year   |
| Approx. Shipping Wt. | 23 lb. (10.44kg)                           | 29 lb. (13.15kg)   |



1. 2° Dial Model No. G-2 (5" only)
2. 2° Dial w/points Model No.  
G-2-P (5" and 6")
3. 5° Dial Model No. G-5 (5" and 6")

## IMPORTANT ORDERING INFORMATION

All Steel and Commercial Boat Compasses are individually custom assembled to order, and there are many options to consider. All models are available with your choice of 12, 24, or 32-volt night lighting. In addition, Globemaster Models are available for either sail or powerboats with a choice of dial sizes and dial degree graduations. The Globemaster Traditional Binnacle Models are also available in Polished Brass (X), Chrome Plated Brass (C) or Black (B) finish. Please ask your dealer or boat builder for complete specifications, options and ordering information

## STEEL & COMMERCIAL BOAT COMPASSES



YB-500

YOKE MOUNT, 5" & 6" DIAL  
steel and commercial vessels larger than 20 feet  
GLOBEMASTER® YB-500 & YB-600 WITH STEEL  
BOAT QUADRANTAL CORRECTORS

|                      | YB-500                          | YB-600                              |
|----------------------|---------------------------------|-------------------------------------|
| Dial Size/Design     | 5" (127mm)                      | 6" (152mm)                          |
| Night Lighting       | 12V Green/24V or 32V by order   |                                     |
| Overall Dimensions   | 19" x 8 1/4"<br>(483mm x 210mm) | 20 1/4" x 9 7/8"<br>(514mm x 245mm) |
| Base                 | 6 7/8" (175mm)                  | 8" (203mm)                          |
| Warranty             | 5-Year                          | 5-Year                              |
| Approx. Shipping Wt. | 18 lb. (8.16kg)                 | 26 lb. (11.90kg)                    |

### GLOBEMASTER SHOCK MOUNT COMPASSES

feature a special anti-vibration mount. Isolates Dial to protect Pivot and Jewel.



B-453

SHOCK MOUNT, 5" & 6" DIAL  
steel and commercial vessels larger than 20 feet  
GLOBEMASTER™ B-453 & B-463 WITH  
STEEL BOAT QUADRANTAL CORRECTORS

|                      | B-453                           | B-463                                |
|----------------------|---------------------------------|--------------------------------------|
| Dial Size/Design     | 5" (127mm)                      | 6" (152mm)                           |
| Night Lighting       | 12V Green/24V or 32V by order   |                                      |
| Overall Dimensions   | 19" x 8 1/4"<br>(463mm x 210mm) | 20 1/2" x 10 1/4"<br>(521mm x 260mm) |
| Base                 | 7 1/4" (111mm)                  | 9 1/2" (241mm)                       |
| Warranty             | 5-Year                          | 5-Year                               |
| Approx. Shipping Wt. | 10 lb. (4.5kg)                  | 24 lb. (10.89kg)                     |



C-453

SHOCK MOUNT, 5" & 6" DIAL  
commercial vessels larger than 20 feet  
GLOBEMASTER™ G-453 & G-463 WITH  
SHOCK MOUNT BINNACLE

|                      | C-453                              | C-463                               |
|----------------------|------------------------------------|-------------------------------------|
| Dial Size/Design     | 5" (127mm)                         | 6" (152mm)                          |
| Night Lighting       | 12V Green/24V or 32V by order      |                                     |
| Overall Dimensions   | 8 1/2" x 8 1/4"<br>(216mm x 210mm) | 9 1/2" x 10 1/4"<br>(241mm x 260mm) |
| Base                 | 8 1/16" (214mm)                    | 9 1/2" (241mm)                      |
| Warranty             | 5-Year                             | 5-Year                              |
| Approx. Shipping Wt. | 7 lb. (3.52kg)                     | 12 lb. (5.44kg)                     |



# Chelsea®

Forged brass. Available with mahogany bases and matching barometers.

Similar to our Ships Bell Clock. Shipstrike Clocks use the finest German movements designed for mass production. Their faces are aluminum. The clock strikes the traditional ships bells - one bell for each half hour on a four hour watch at sea. After eight bells, at four, eight and twelve o' clock, the sequence repeats itself beginning with one bell. A uniquely satisfying way to mark the passage of time.

Single bellows. Barometer can be selected individually or matched as a set with the Shipstrike Clock.



4 1/2" DIAL

**SHIPSTRIKE QUARTZ CLOCK**  
NEEDS NO WINDING  
MOUNT ON WALL OR BASE

Screw on Bezel 40033

MAHOGANY BASE:

|              |            |
|--------------|------------|
| 23368 SINGLE | (as shown) |
| 24355 SINGLE | (Key Wind) |
| 24356 DOUBLE | (left)     |

MATCHING ANEROID BAROMETER

40017 4 1/2" Dial

40027 6" Dial

MAHOGANY BASE (top photo)



## The Nautical Clock

4 1/2" DIAL. Mount on wall or base. The Nautical Clock played a supporting role in the movie "**Clear and Present Danger**". For those who prefer the nautical look but without the Ship's Bell sound, this forged brass clock with screw on bezel is an excellent choice. The rich contrast of polished brass and mahogany evokes the seafaring tradition.

40069 NAUTICAL CLOCK  
MAHOGANY BASE: 24355 (shown)

40071 MATCHING ANEROID BAROMETER, MAHOGANY BASE (see above).

For forecasting change in weather, this instrument is calibrated in inches, centimeters and millibars. Barometers can be selected individually or matched as a set with the Nautical Clock.





# Chelsea®

## 40110 WEATHER STATION 12"W, 5"H

Clock. Barometer, Thermometer/Hygrometer set on a hardwood plaque for wall mounting. Beautifully hand polished brass case with curved glass crystal. Engraving plate included.



## THE MARITIME SERIES

A selection of nautical instruments guaranteed to please every armchair sailor. There is a 12/24 hour "Watch Keeping" clock. A Tide/Time clock that displays the time and the hours and minutes before high tide and low tide in your local area (east coast of North America only). Matching aneroid barometer for forecasting change in the weather. For wall mounting in beautifully hand polished brass with curved glass crystal. 4" dial.

40127 WATCH KEEPING CLOCK

40124 TIDE/TIME CLOCK

40123 BAROMETER



## GRAVE MATTERS

If you're dead, you're history. Here are some not-very-grave epitaphs from around the world.

36-33-01-24-17

Honey you don't know what you did for me,  
always playing the lottery.

The numbers you picked came in to play,  
two days after you passed away.

For this, a huge monument I do erect,  
for now I get a yearly check.

How I wish you were alive,  
for now we are worth \$8.5.

Jonathan Fiddle  
Went out of tune.

Been here:  
Now gone:  
Had a good time.

"I told you I was sick!"

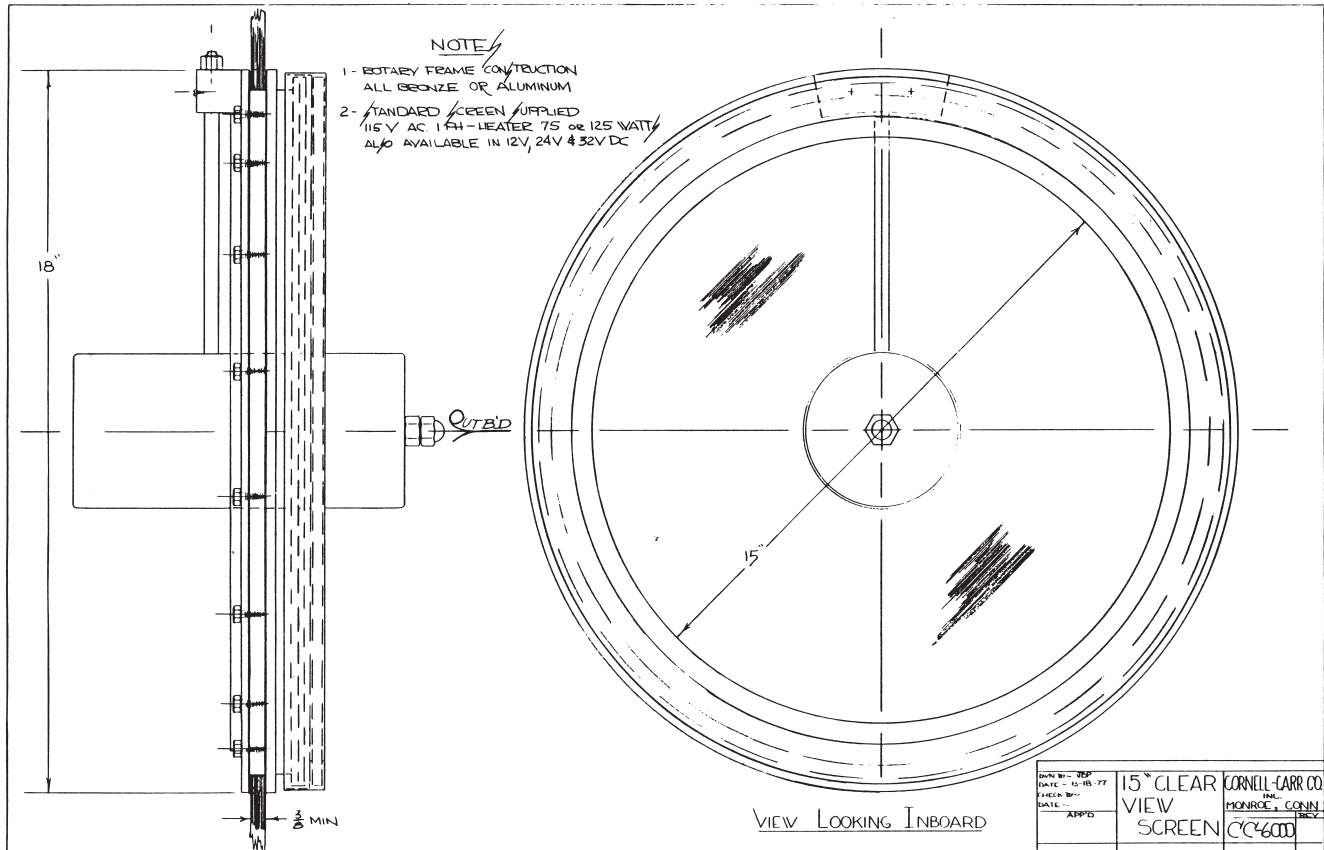
On the 22nd of June

## ROTARY CLEAR VIEW SCREEN

Available through Cornell-Carr Company is the 12" & 14" Speich or the Kent Clearview Screen. Also available is the Cornell-Carr Co. 15" CVS (Mfg. by C.C.C.)

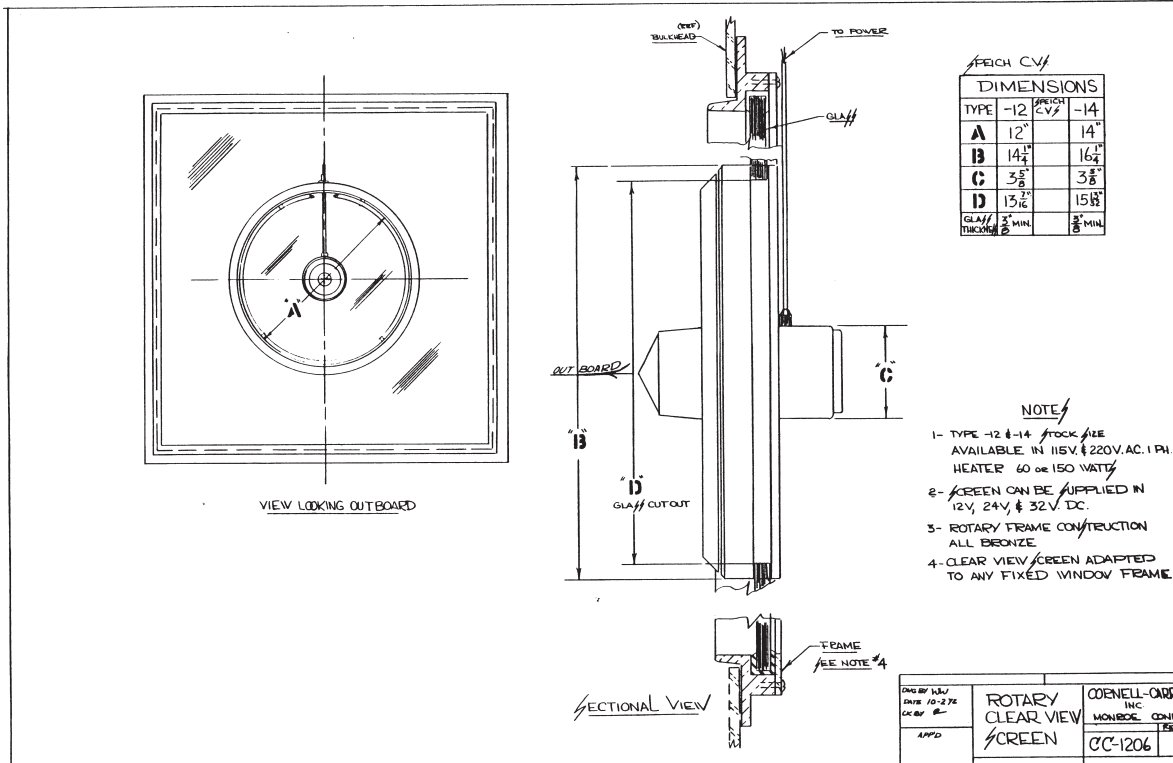
Designed for mounting in a hole cut out in a ships window. The screen is double glazed, a fixed glass carrying the drive motor and a rotating glass fitted directly onto its shaft. A heating element is fitted between the rotating glass and motor support glass to eliminate any condensation and ice during extreme weather conditions.

Careful balancing of the rotating glass and lifelong lubrication of bearings insure silent operation and make routine maintenance unnecessary. Best quality armoured glass, optically ground and true, is used throughout and all metal parts are solid bronze.



15" CLEAR VIEW SCREEN

CC 6000



CC 1206

ROTARY CLEAR VIEW SCREEN

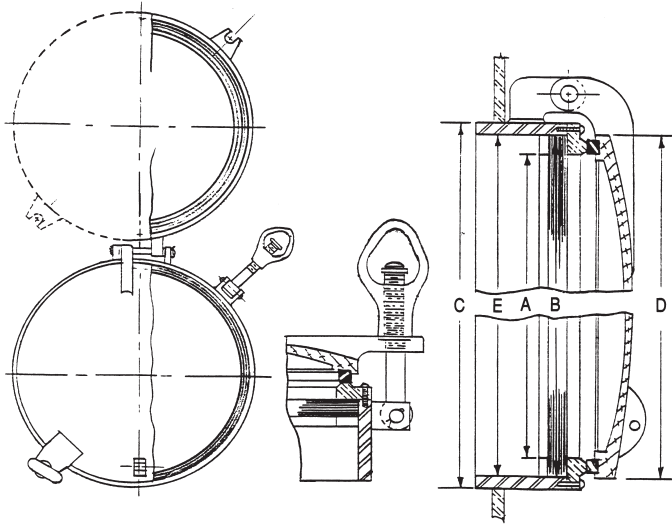
## CC-7137 • WELD-IN FIXED PORTLIGHT

### DIMENSIONS

| A  | B  | C  | D      | E      |
|----|----|----|--------|--------|
| 12 | 13 | 14 | 13-1/8 | 13-1/4 |
| 14 | 15 | 16 | 15-1/8 | 15-1/4 |
| 16 | 17 | 18 | 17-1/8 | 17-1/4 |
| 18 | 19 | 20 | 19-1/8 | 19-1/4 |

### NOTES

1. Main frame to be steel or stainless steel.
2. Retainer ring to be bronze.
3. 3/4" tempered clear glass standard.
4. Fixed ports are available with or without deadlight cover. Can be aluminum or steel.



DRAWN  
DATE  
CHECKED  
DATE  
APPD

WELD-IN FIXED  
PORTLIGHT

CORNELL-CARR CO., INC  
MONROE, CONN.  
CC DRWG NO.  
CC-7137  
REV.  
CC JOB NO.

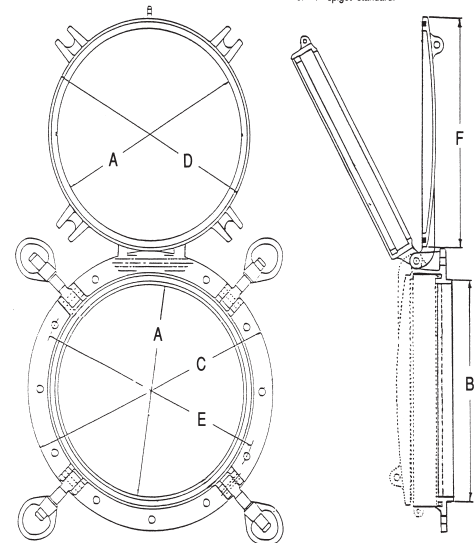
## CC-7136 • BOLT-IN AIRPORT

### DIMENSIONS

| A  | B      | C      | D      | E      | F      |
|----|--------|--------|--------|--------|--------|
| 10 | 10-1/2 | 14-1/2 | 11-1/8 | 12-7/8 | 10-7/8 |
| 12 | 12-1/2 | 16-1/2 | 13-1/8 | 14-7/8 | 12-7/8 |
| 14 | 14-1/2 | 18-1/2 | 15-1/8 | 16-7/8 | 14-7/8 |
| 16 | 16-1/2 | 20-1/2 | 17-1/8 | 18-7/8 | 16-7/8 |
| 18 | 18-1/2 | 22-1/2 | 19-1/8 | 20-7/8 | 18-7/8 |

### NOTES

1. Airports are available in bronze or aluminum.
2. 3/4" tempered clear glass standard.
3. Airports are available with or without aluminum deadlight covers.
4. Insect screens are available in stainless.
5. Standard mounting holes 1/2" diameter. Other sizes upon request.
6. 1" spigot standard.



DRAWN  
DATE  
CHECKED  
DATE  
APPD

BOLT-IN  
AIRPORT

CORNELL-CARR CO., INC  
MONROE, CONN.  
CC DRWG NO.  
CC-7136  
REV.  
CC JOB NO.

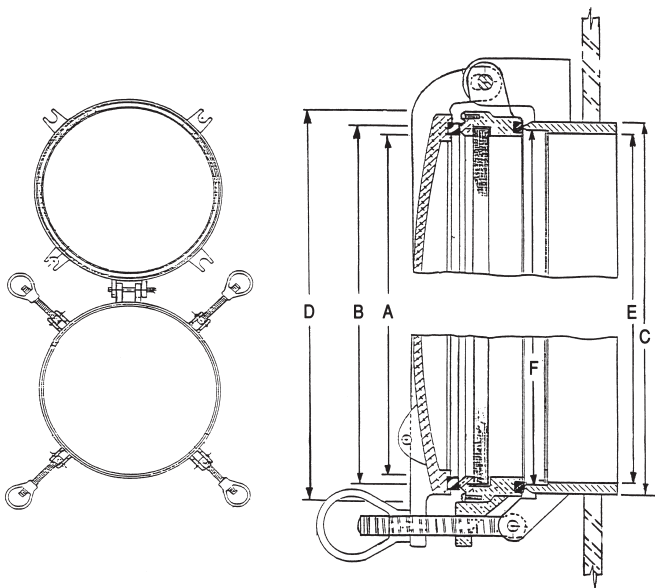
## CC-7135 • WELD-IN AIRPORT

### DIMENSIONS

| A  | B      | C  | D      | E      | F       |
|----|--------|----|--------|--------|---------|
| 12 | 12-1/2 | 13 | 13-1/8 | 12-1/4 | 12-7/16 |
| 14 | 14-1/2 | 15 | 15-1/8 | 14-1/4 | 14-7/16 |
| 16 | 16-1/2 | 17 | 17-1/8 | 16-1/4 | 16-7/16 |
| 18 | 18-1/2 | 19 | 19-1/8 | 18-1/4 | 18-7/16 |

### NOTES

1. Main frame to be steel or stainless steel.
2. Lens frame to be aluminum or bronze.
3. 3/4" tempered clear glass standard.
4. Airports are available with or without covers. Can be aluminum or steel.
5. Insect screens are available in stainless.



DRAWN  
DATE  
CHECKED  
DATE  
APPD

WELD-IN  
AIRPORT

CORNELL-CARR CO., INC  
MONROE, CONN.  
CC DRWG NO.  
CC-7135  
REV.  
CC JOB NO.

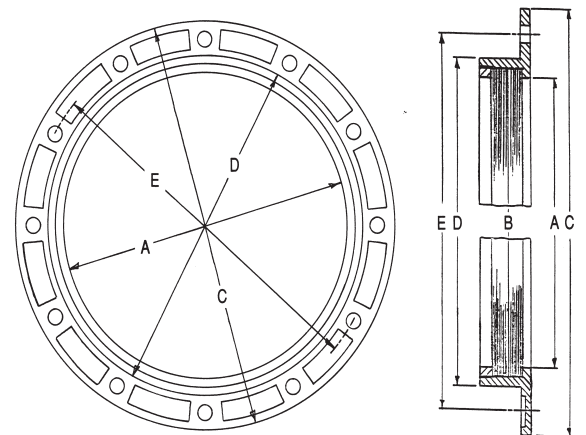
## CC-7138 • BOLT-IN FIXED PORTLIGHT FLUSH MOUNTING

### DIMENSIONS

| A  | B      | C  | D      | E      |
|----|--------|----|--------|--------|
| 4  | 4-1/2  | 7  | 5-1/4  | 6      |
| 6  | 6-1/2  | 9  | 7-1/4  | 8      |
| 8  | 8-1/2  | 11 | 9-1/4  | 10     |
| 10 | 10-1/2 | 14 | 11-1/4 | 12-1/2 |
| 12 | 12-1/2 | 16 | 13-1/4 | 14-1/2 |
| 14 | 14-1/2 | 18 | 15-1/4 | 16-1/2 |
| 15 | 15-1/2 | 19 | 16-1/4 | 17-1/2 |
| 16 | 16-1/2 | 20 | 17-1/4 | 18-1/2 |
| 18 | 18-1/2 | 22 | 19-1/4 | 20-1/2 |
| 20 | 20-1/2 | 24 | 21-1/4 | 22-1/2 |
| 24 | 24-1/2 | 28 | 25-1/4 | 26-1/2 |

### NOTES

1. Fixed portlights are available in bronze or aluminum.
2. 1/2" or 3/4" tempered clear glass standard (depending on size of portlight).
3. All mounting holes to be 1/2" diameter. Other sizes available upon request.



DRAWN  
DATE  
CHECKED  
DATE  
APPD

BOLT-IN FIXED  
PORTLIGHT  
FLUSH MOUNTING

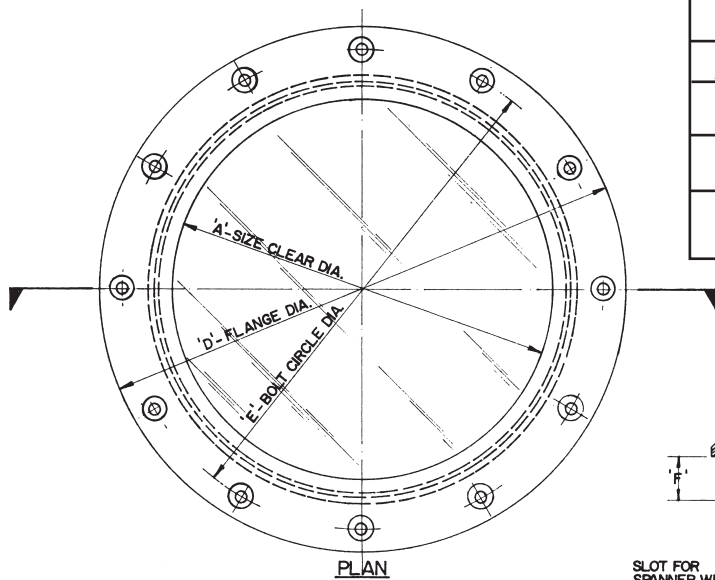
CORNELL-CARR CO., INC  
MONROE, CONN.  
CC DRWG NO.  
CC-7138  
REV.  
CC JOB NO.



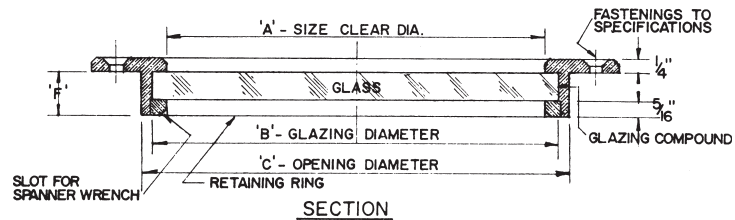
# BRASS OR ALUMINUM PLAIN FIXED LIGHT

(Also available in Stainless Steel)

Drawing No. 500



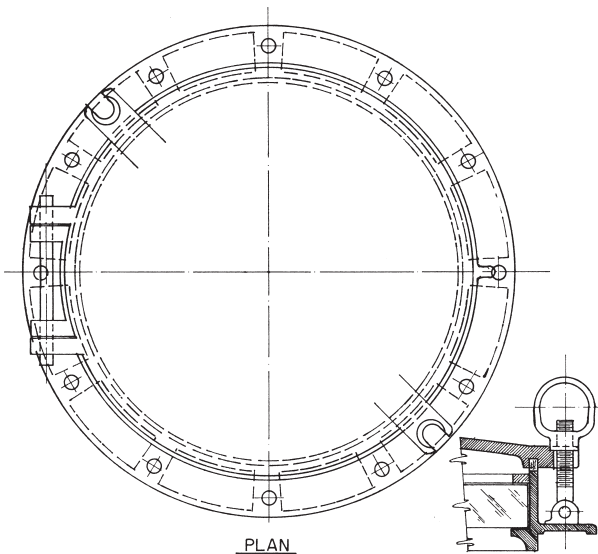
| DWG 500 DIMENSION SCHEDULE |         |         |          |          |         |
|----------------------------|---------|---------|----------|----------|---------|
| A                          | B       | C       | D        | E        | F       |
| 10"                        | 10 1/2" | 11 1/6" | 13 1/4"  | 12 1/4"  | 1 1/16" |
| 12"                        | 12 1/2" | 13"     | 15 3/16" | 14 3/16" | 1 1/4"  |
| 16"                        | 16 1/2" | 17"     | 19 1/2"  | 18 1/2"  | 1 3/8"  |



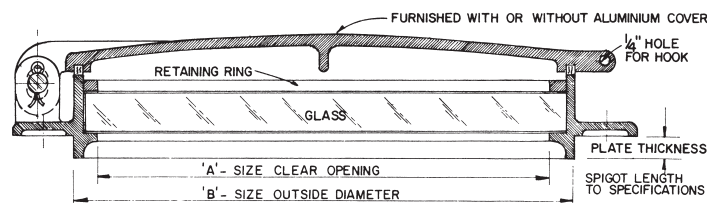
# BRASS OR ALUMINUM REVERSED FIXED LIGHT

(Also available in Stainless Steel)

Drawing No. 600



| DWG 600 DIMENSION SCHEDULE |        |         |         |       |
|----------------------------|--------|---------|---------|-------|
| A                          | B      | C       | D       | E     |
| 10"                        | 0-1/2" | 11"     | 13 5/8" | 5/16" |
| 12"                        | 0-1/2" | 13 1/8" | 15 7/8" | 3/8"  |
| 16"                        | 0-1/2" | 17 1/4" | 20 3/8" | 1/2"  |

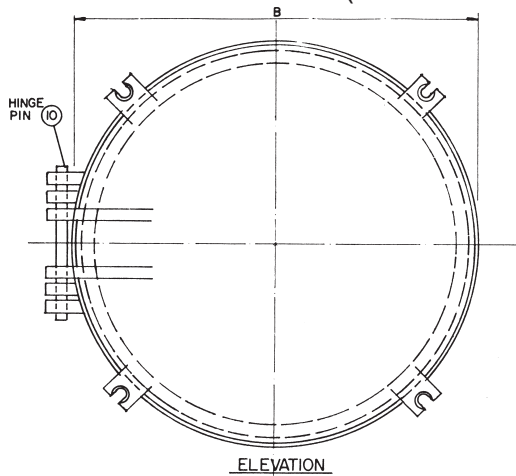


# PORTLIGHT

## STEEL BACK-WELD IN

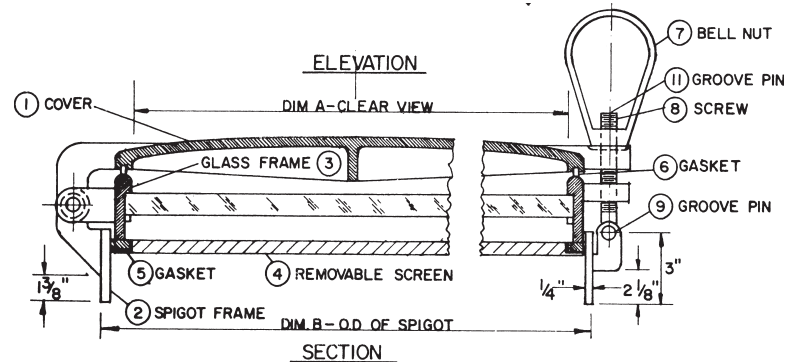
(Also available in Stainless Steel)

Drawing No. 700



**DWG 700 DIMENSION SCHEDULE**

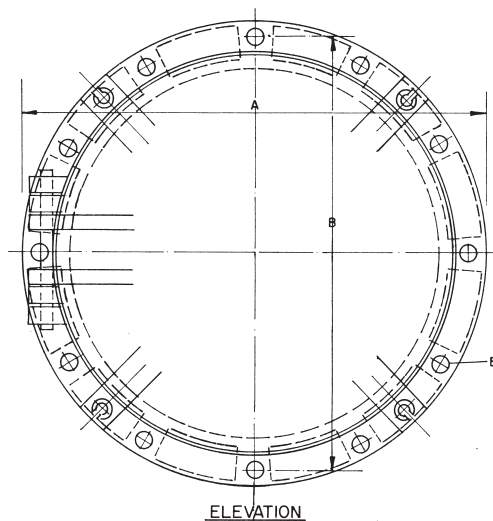
| SIZE | A   | B       |
|------|-----|---------|
| 12   | 12" | 13 1/2" |
| 14   | 14" | 15 1/2" |
| 16   | 16" | 17 1/2" |
| 18   | 18" | 19 1/2" |



# PORTLIGHT

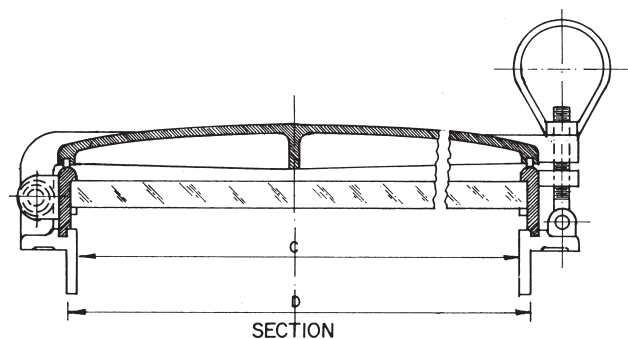
## BRASS OR ALUMINUM BOLT ON

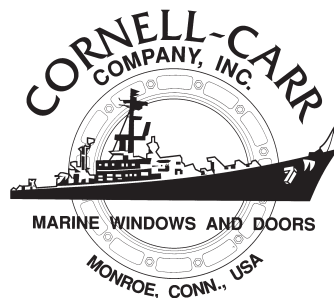
Drawing No. 800



**DWG 800 DIMENSION SCHEDULE**

| SIZE | A       | B       | C   | D       | E    |
|------|---------|---------|-----|---------|------|
| 10   | 14 1/4" | 12 3/4" | 10" | 10 3/8" | 1/2" |
| 12   | 16"     | 14 3/4" | 12" | 12 3/8" | 1/2" |
| 14   | 18"     | 17"     | 14" | 14 3/8" | 1/2" |
| 16   | 20 3/8" | 18 7/8" | 16" | 16 1/2" | 1/2" |
| 18   | 22 3/4" | 21 1/8" | 18" | 18 1/2" | 1/2" |





## **SHIP WINDOWS**

Aluminum and bronze are easily fabricated into windows. By the use of extrusions and castings, the desired shapes are easily attained. However, their physical qualities are limited and certain chemical conditions affect the appearance and operation of these windows. Stainless steel, on the other hand, withstands all conditions and meets the requirements of modern shipping today. This metal must be formed into the required shapes by use of a braking mechanism along with other skilled manufacturing procedures. In the past only the larger passenger and U. S. Navy vessels could bear the additional cost of stainless steel windows. Our experience in metal fabrication enables our organization to offer stainless steel windows at a cost almost comparable to windows made of aluminum and bronze by our competitors.

In most cases a weathertight window sufficiently fulfills the requirements of vessels today. The definition of a weathertight window is one that will take almost any degree of gale driven spray or rain without permitting water to get into protected spaces. A weather tight window has been found to be very satisfactory for ordinary wheelhouse and stateroom use which allows a slight degree of leakage when closed. This type of window is so designed to collect such leakage and dispose of it. Weathertight windows are constructed to meet the hose test requirements of the Maritime Administration (30 lbs. pressure through a 1/2" nozzle at a distance of 25 feet). Under this test slight leaking is allowed, which of course is disposed of by drain pans or scuppers as explained above.

The CORNELL - CARR COMPANY will manufacture windows of almost every description with glass either counterbalanced or mechanically controlled, dropping into pockets, horizontal sliding windows, promenade deck windows of all descriptions, and public space windows.

### **REQUEST FOR QUOTATION SHEET WINDOWS**

**TYPE - (DWG. No.)**

**DESCRIPTION -**

**SIZE - w & dim. or plate cut out**

**QUANTITY -**

**MATERIAL - Bronze, aluminum or St. St.**

**GLASS - Clear or Tinted**

**GLASS - Thickness**

**GLASS - Type**

**INSTALLATION - Flat or Radius blk.**

**MOUNTING HOLE - Not drilled unless specified**

**SPECIAL REQUIREMENTS:**



## GLASS

To meet the necessary conditions required in the manufacture of marine windows, it is important to select the proper type of glass. Following is a description of the various types used:

POLISHED PLATE GLASS is made by grinding and polishing the two surfaces of a glass blank to make them flat and parallel and to provide clear vision with a minimum of distortion.

It is available in the following thicknesses: 1/4", 3/8", 1/2", and 1". The allowable tolerances are one-half of the difference between the size above or below, i.e., unless especially selected a 1/4" light may range from 3/16" to 5/16".

HEAT TREATED GLASS is plate glass which has undergone a special process of reheating and rapid cooling resulting in a glass that is 3 to 5 times stronger than plate glass in sustaining loads or resisting strain, about 5 to 7 times more resistant to ordinary impact, and disintegrates into small crystals instead of breaking into jagged pieces which plate glass would do.

Heat treated glass is widely used in windows, airports, frameless glass doors, and other installations where strength and high resistance to temperature changes are required. It is often referred to as "tempered" or "armourplate", and is available under the trade names of Tuflex, Securit, or Herculite.

WIRE GLASS. According to U. S. Coast Guard regulations, wire glass is to be used in all passenger ship windows which lead from an enclosed space to areas that are used as passages. For instance, lounge windows leading to a promenade deck enclosure, etc.

Ordinary polished plate wire glass (chicken-wire type) is ordinarily available in thicknesses from 1/4" to 3/8". The manufacture of thicknesses above 3/8" has been practically discontinued because of its unpleasant appearance.

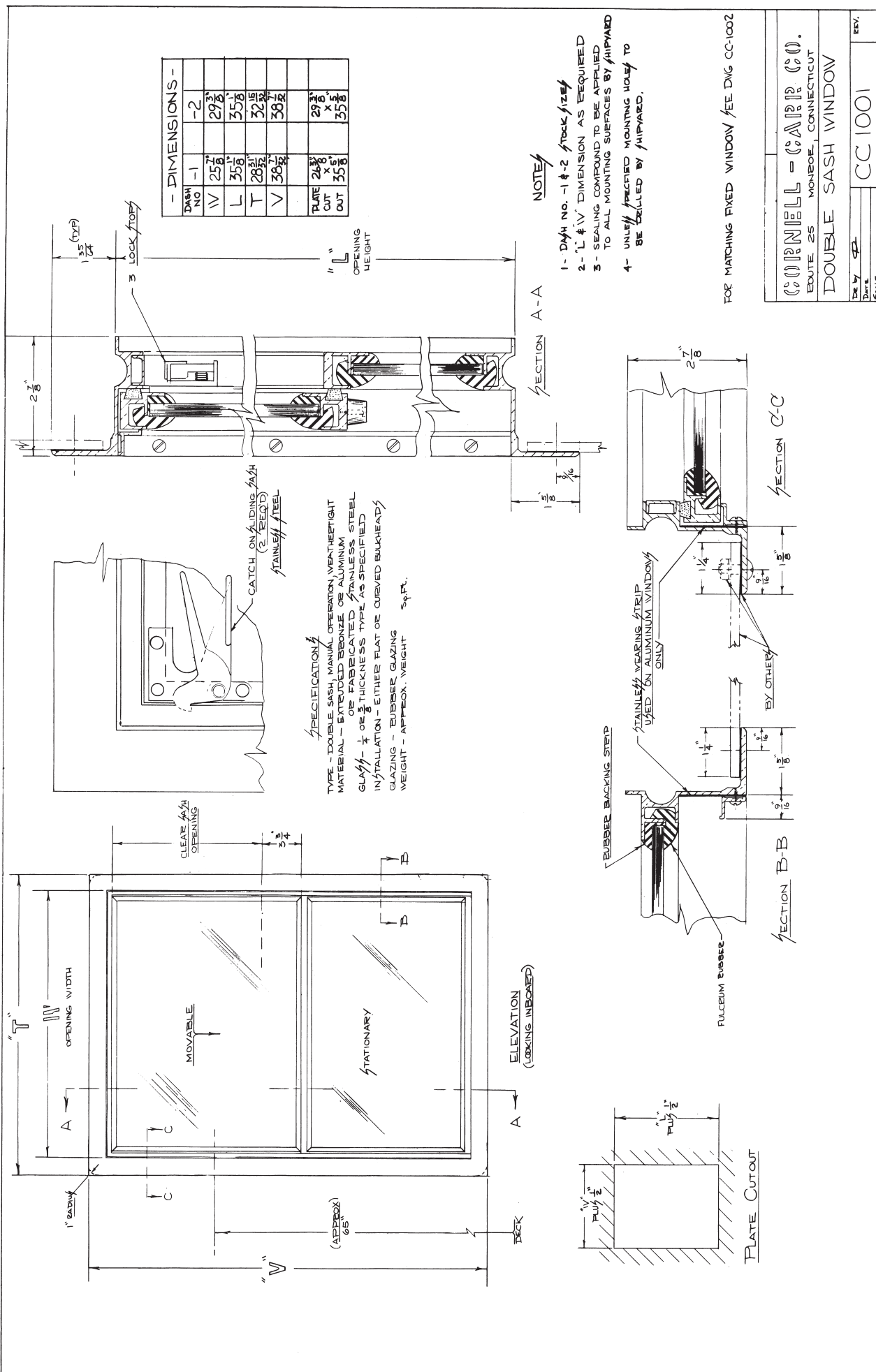
For use in windows in protected spaces, we recommend the use of "Misco" or "Nu-weld." In this type of glass the wire is in a diamond shape, 3/4" to a side, with the wires electrically welded where they cross. This glass has the approval of the Fire Underwriters and is available only in 1/4" thickness. No wire glass can be tempered.

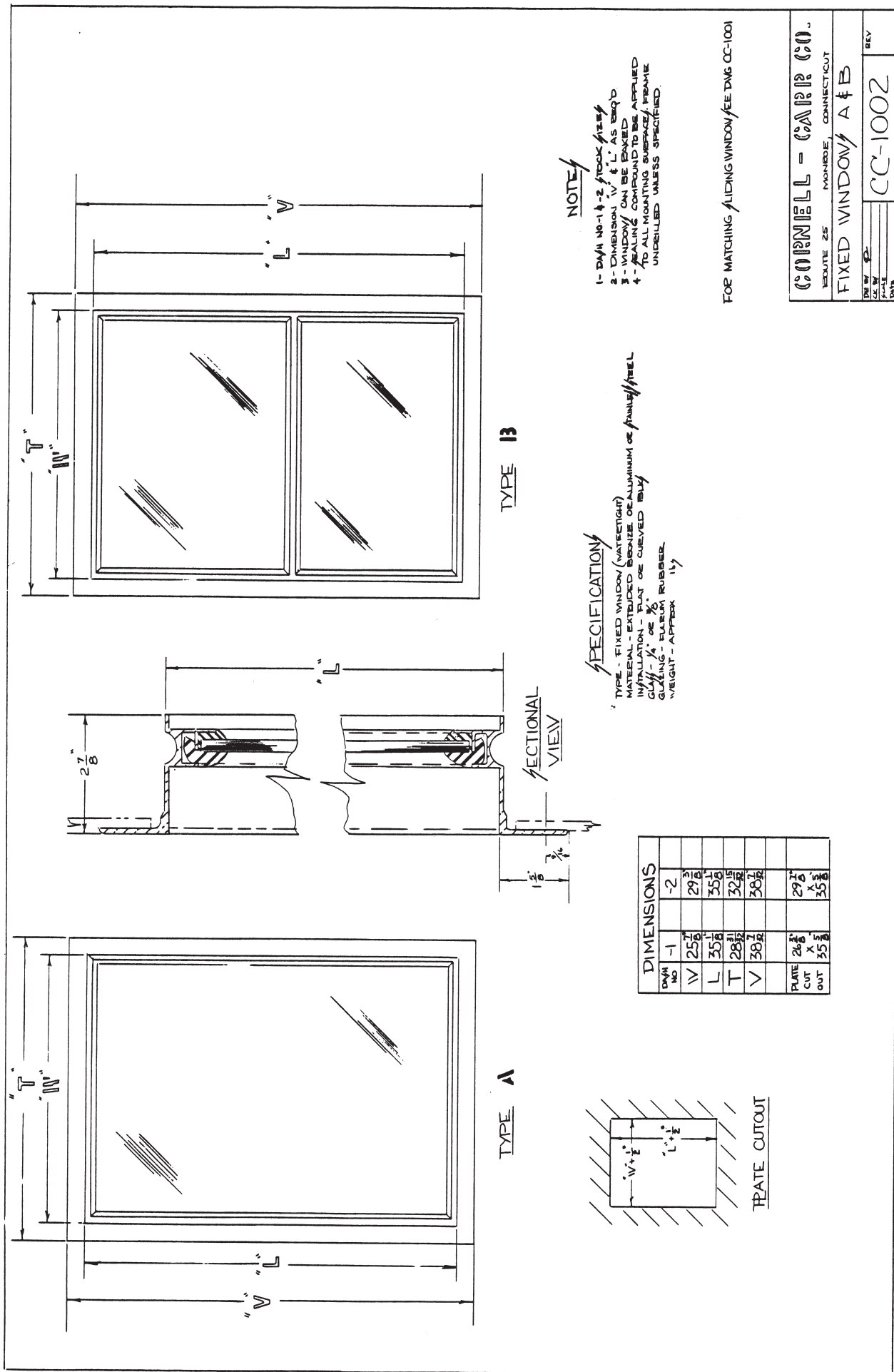
TINTED GLASS is a glass of special chemical composition, pale bluish green in color. It absorbs most of the infra-red rays of the sun and reduces sun glare. Some of this absorbed heat is transmitted to the interior, but a considerable portion is given off to the exterior, thereby reducing the solar heat entering through the glass. Tinted glass produces a cooler inside temperature. (Also known as Coolite, Solex, Easyeye, or heat-absorbing glass.)

LAMINATED GLASS is composed of two lights of glass that have been laminated with an interlayer of transparent plastic by a process involving heat and pressure. When fractured, the particles of glass have a tendency to adhere to the plastic, thereby giving more protection against flying glass fragments. Its use is indicated in areas where breakage and collapse of glass would cause damage or injury. (Sometimes referred to as "shatterproof" or "safety glass".) Laminated glass will fracture under lighter loads than plate glass of the same thickness. Delamination and consequent discoloration are to be considered as possibilities.

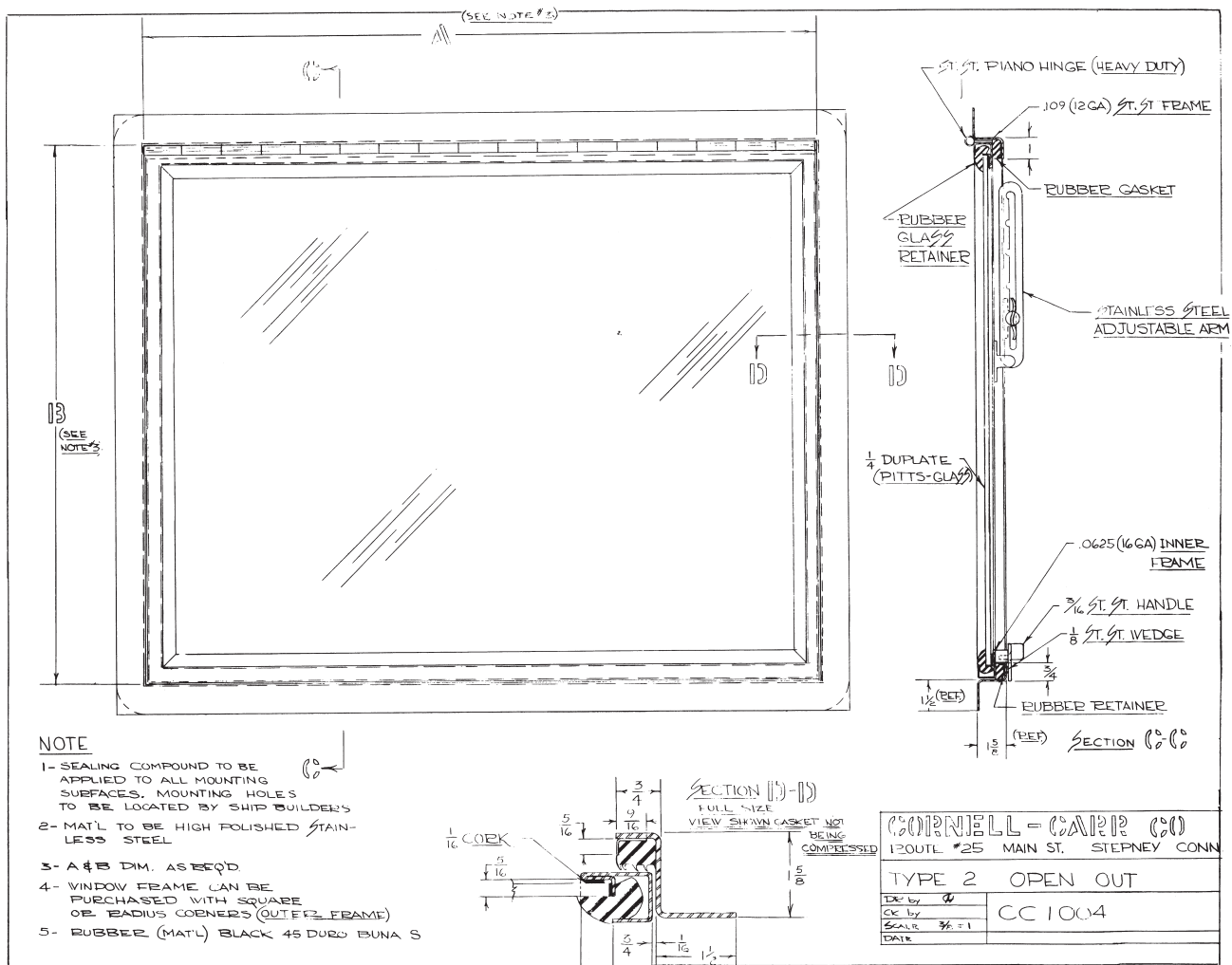
THERMOPANE OR TWINDOW is a factory-fabricated insulating glass unit composed of two or more panes of glass separated by 1/4" or 1/2" of dehydrated captive air, hermetically sealed at the edges in the factory with a metal-to-glass bond.

The co-efficient of heat transmission is reduced, thereby increasing the room side surface temperature. The result is a promotion of radiant comfort, a lowering of the dew point, and to some degree a deadening of sound transmission. The thickest light used in the construction of "Thermopane" or "Twindow" determines the strength of the window.



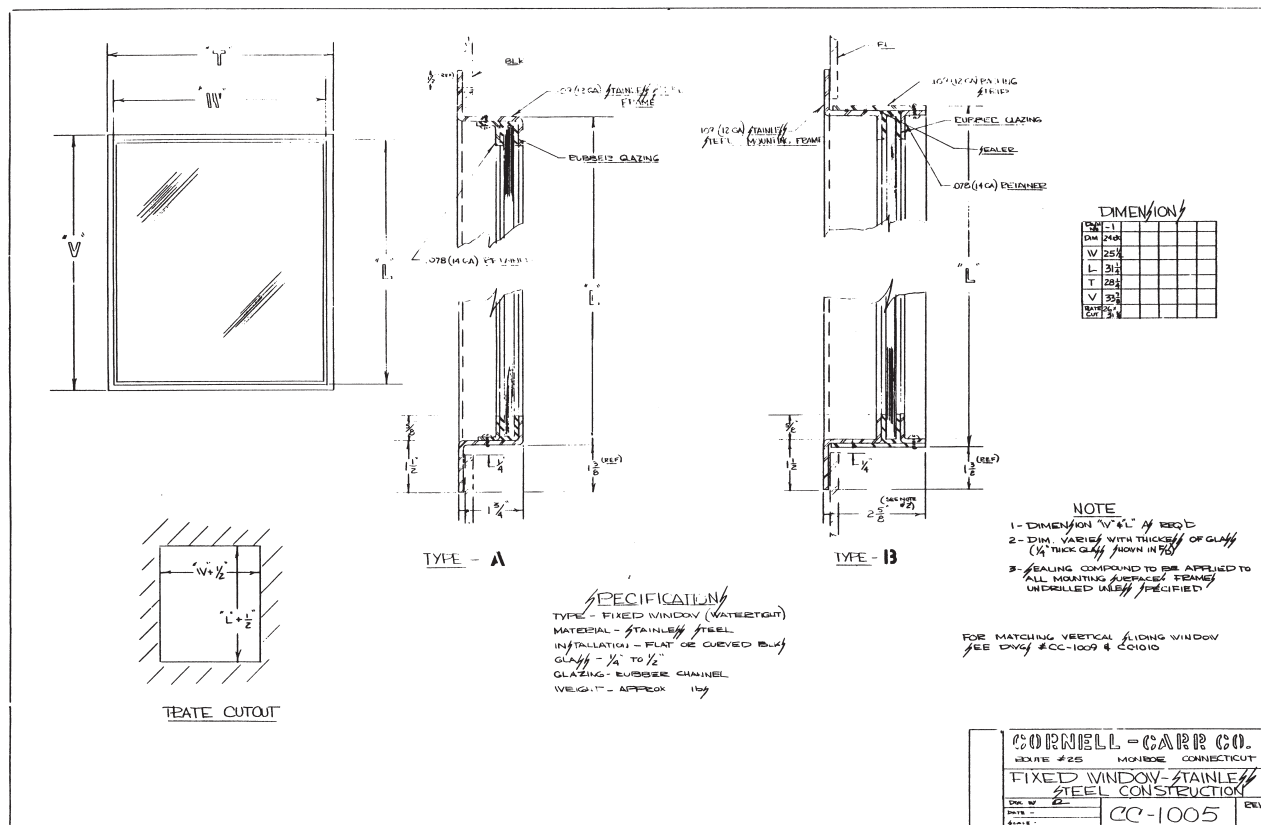






TYPE 2 OPEN OUT

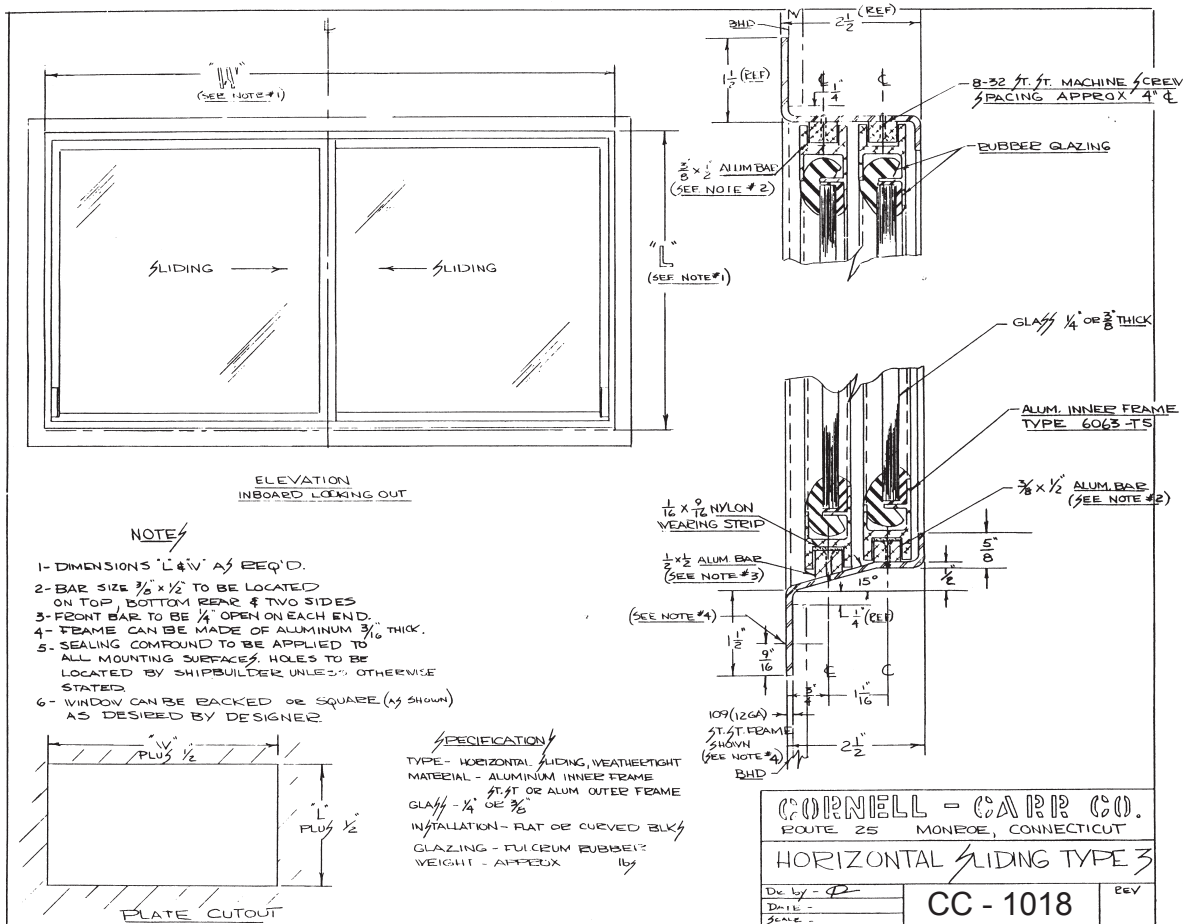
CC 1004



FIXED WINDOW - STAINLESS STEEL CONSTRUCTION

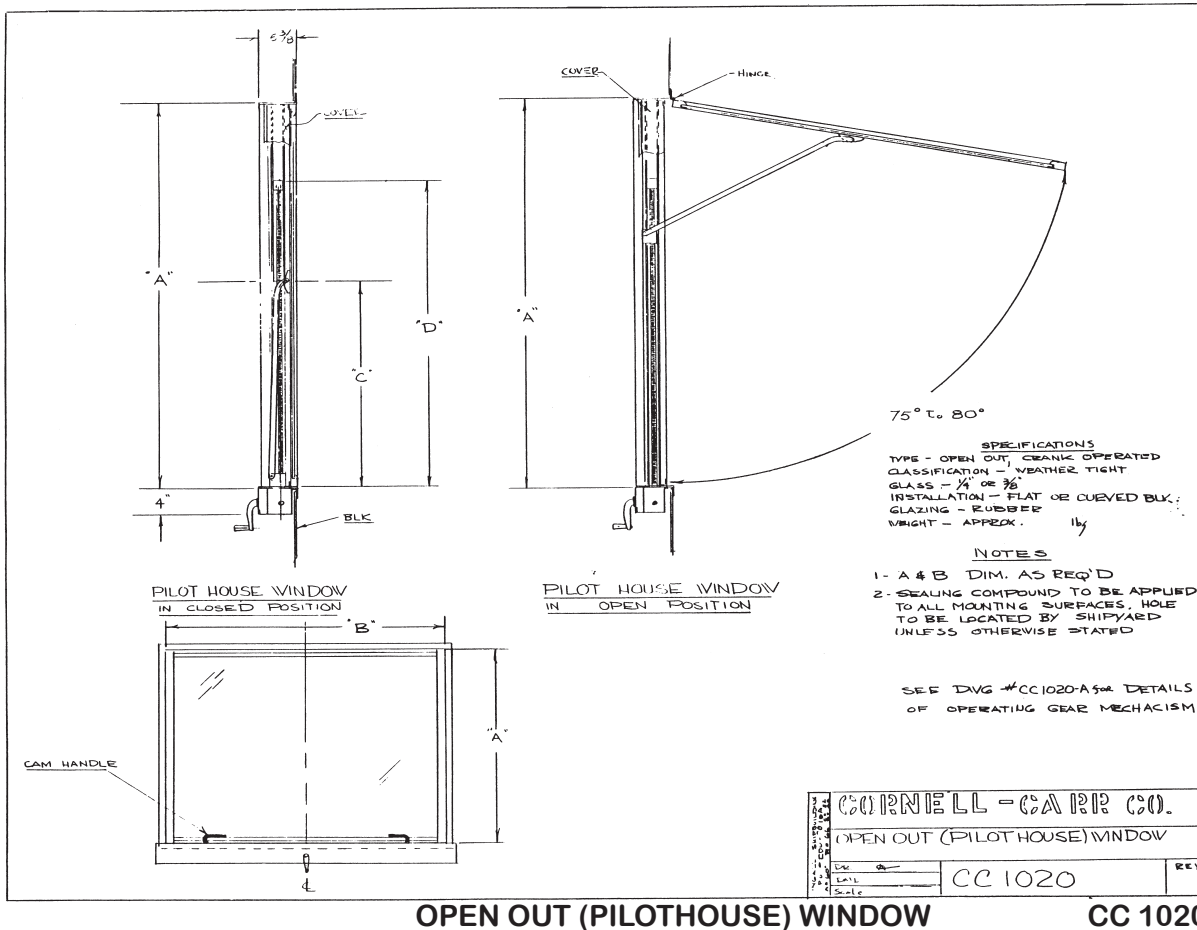
CC 1005





HORIZONTAL SLIDING TYPE 3

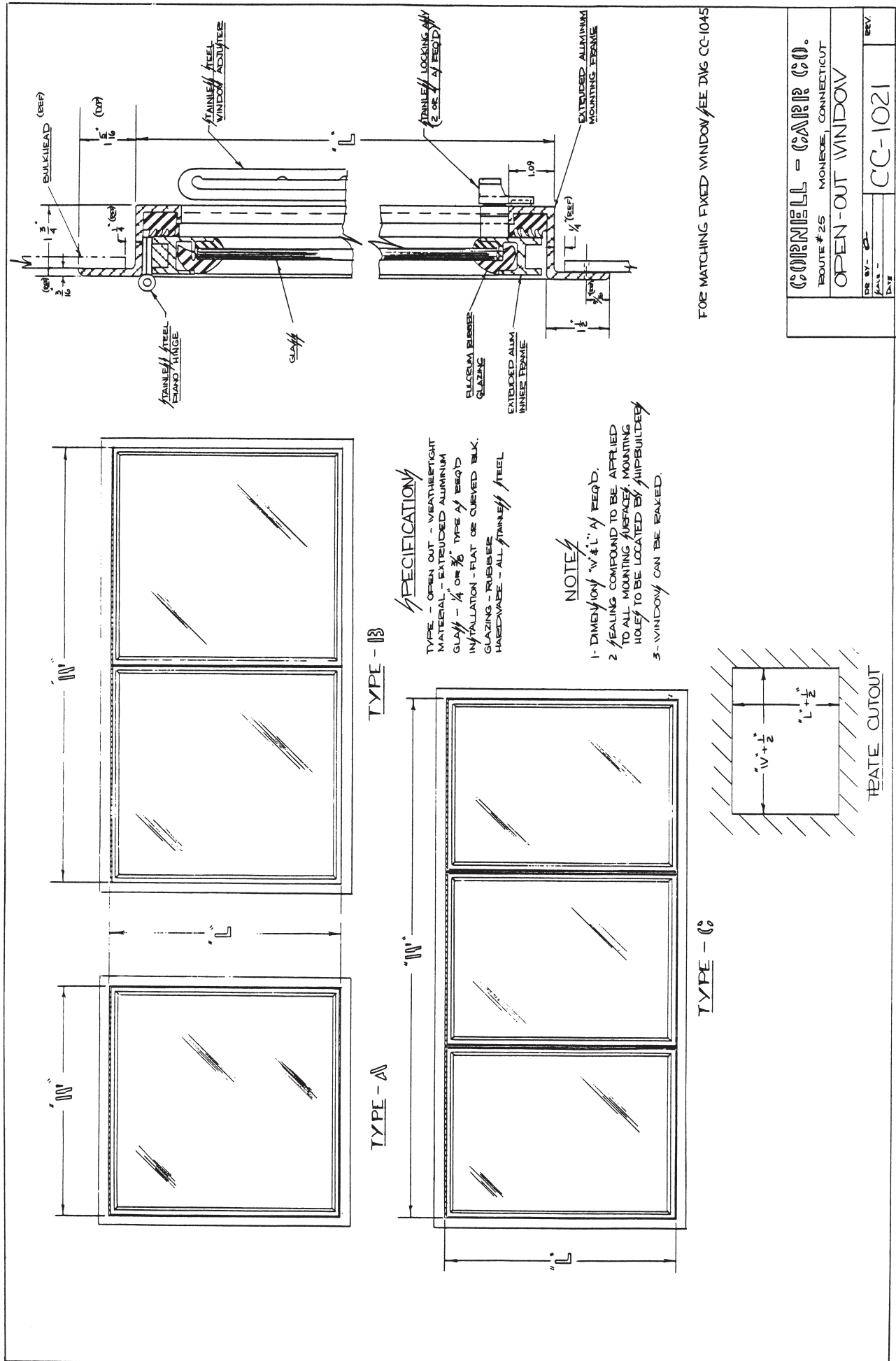
CC 1018



OPEN OUT (PILOTHOUSE) WINDOW

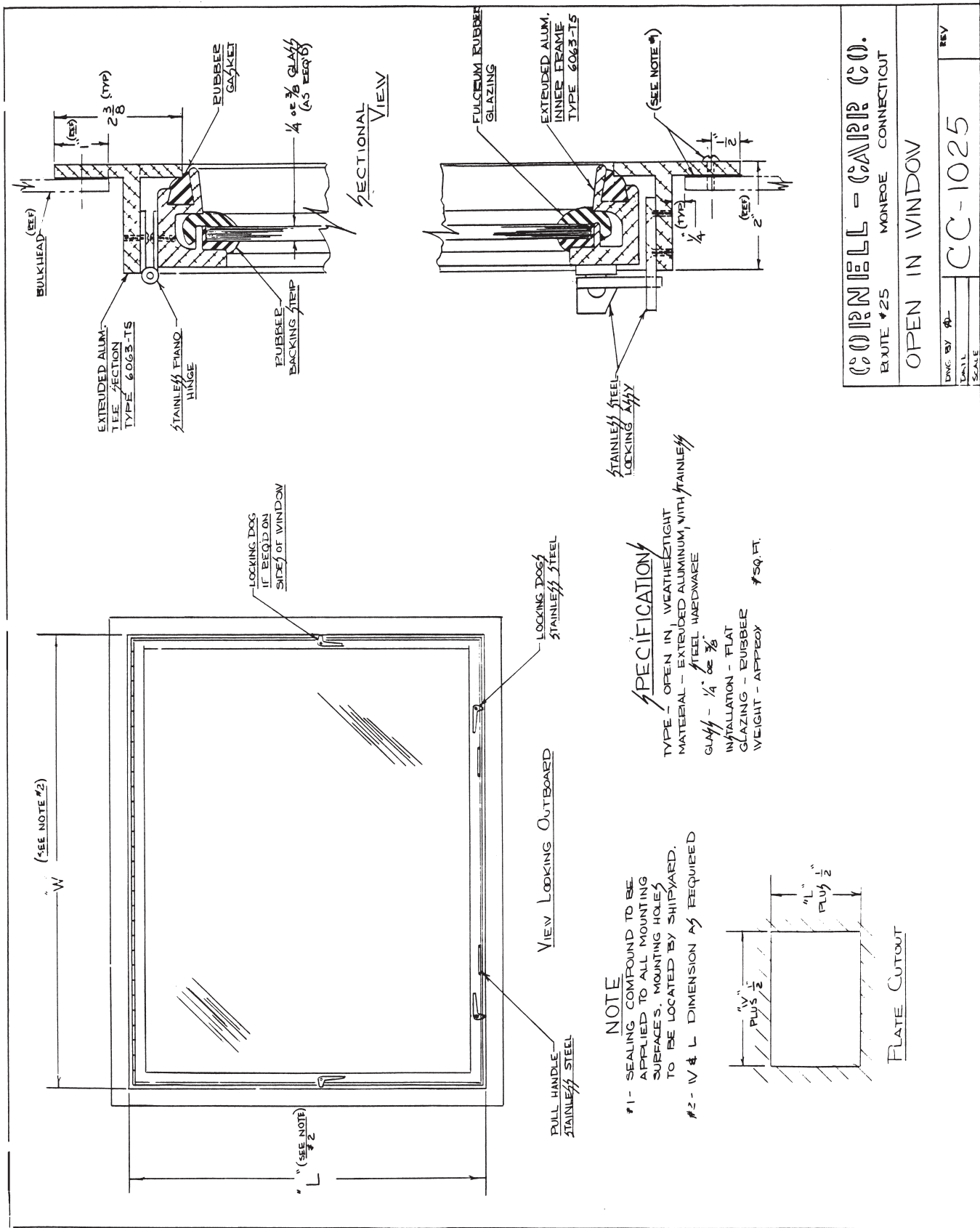
CC 1020





OPEN OUT WINDOW

CC 1021

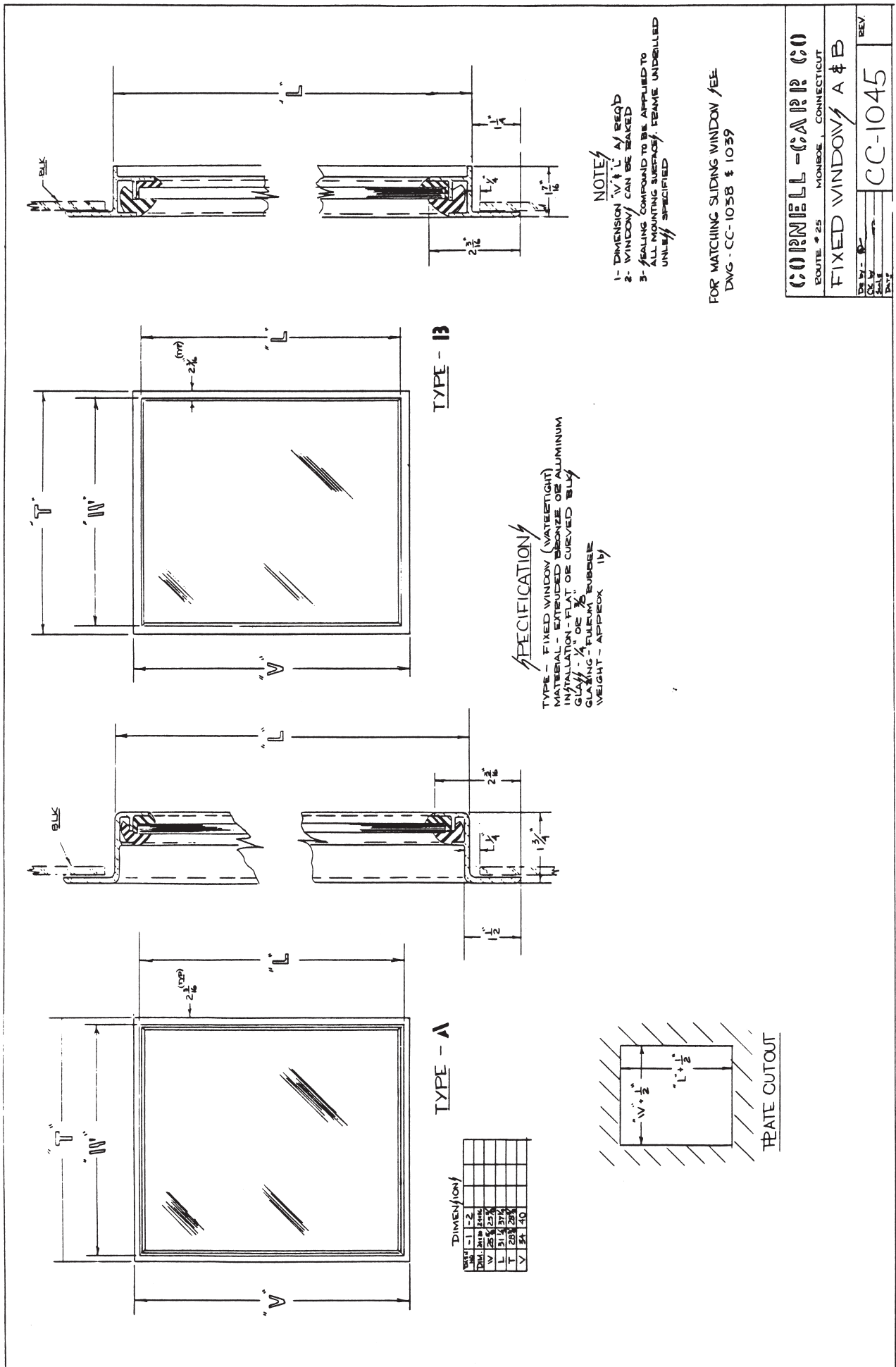


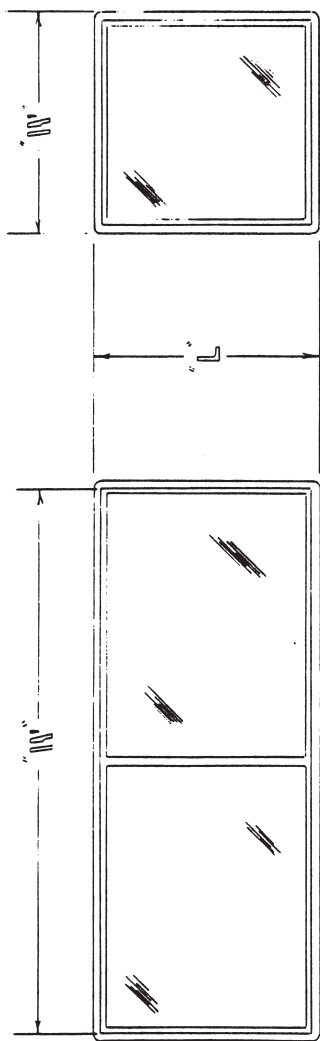
BYRNE, RICE AND TURNER

EXHIBIT #25 MONROE CONNECTICUT

OPEN IN WINDOW

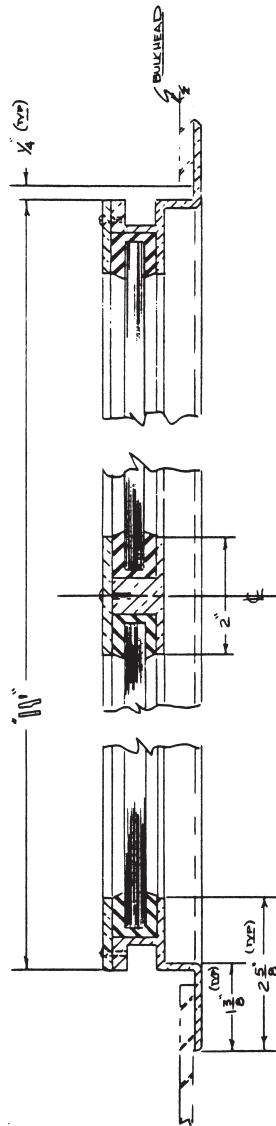
|         |     |
|---------|-----|
| DATE    | REV |
| BY      |     |
| SCALE   |     |
| CC-1025 |     |





TYPE - A

TYPE - B



SPECIFICATION

TYPE - FIXED WINDOW, WATERIGHT  
 MATERIAL - EXTRUDED BRONZE OR ALUM  
 GLASS - 1/4" OR 3/8" OF 1/2" OF 1/2" OF 1/2"  
 INSULATION (1/2" FLAT OR CURVED BULK)  
 GLAZING - RUBBER  
 WEIGHT - APPROX 15 lb

NOTE

- 1-DIM. 10" 1/2" 10" 10" 10"
- 2-WINDOW CAN BE MADE IN 3
- OR MORE SECTIONS (1/2" SECTION SHOWN)
- 4-SEALING COMPUND TO BE APPLIED TO ALL MOUNTING SURFACE, FRAME UNDEILLED UNLESS SPECIFIED.

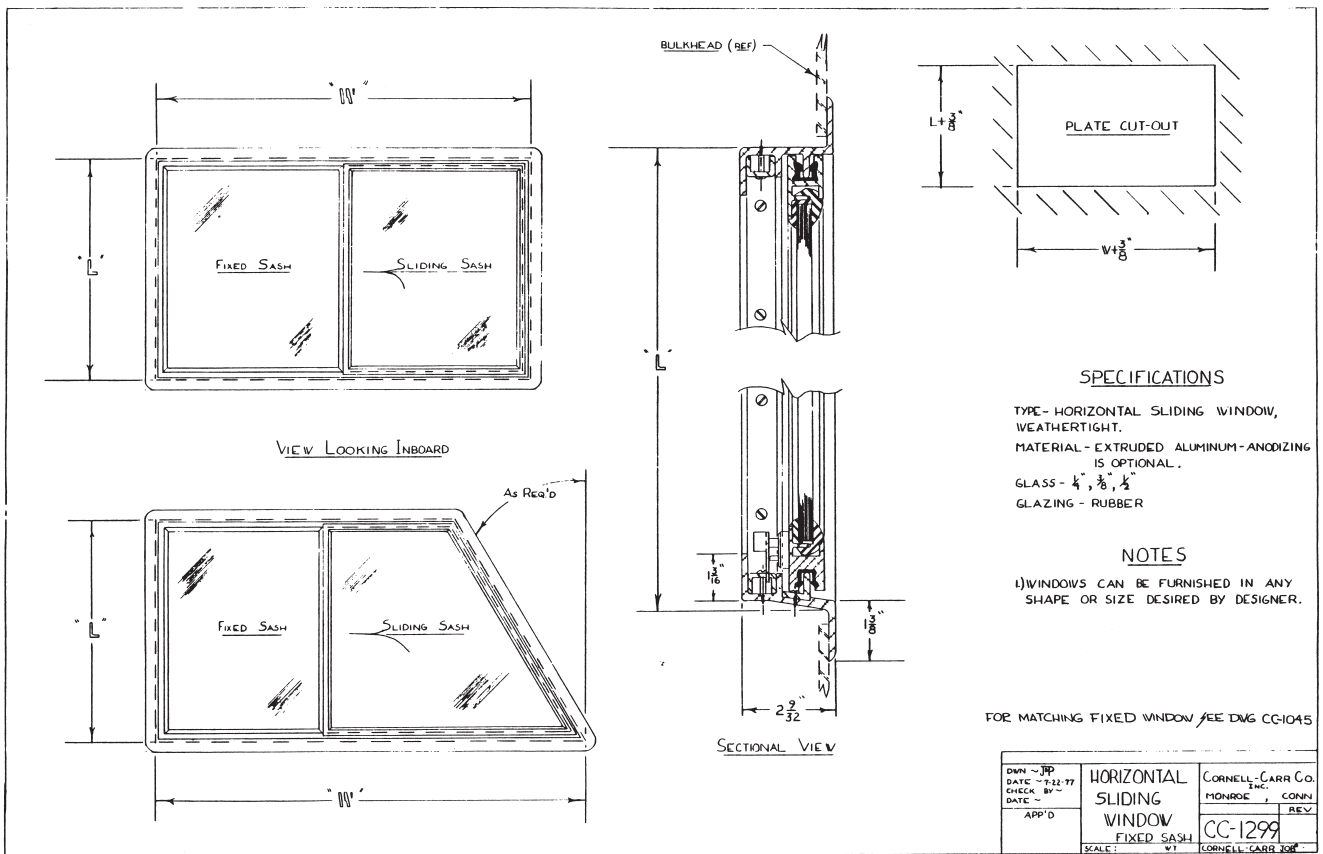
PLATE CUTOUT

|                               |         |
|-------------------------------|---------|
| BYRNE, RICE & TURNER CO.      |         |
| ROUTE #25 MONROE, CONNECTICUT |         |
| FIXED WINDOW                  |         |
| REV                           | REV     |
| DATE                          | DATE    |
| BY                            | BY      |
| CC-1046                       | CC-1046 |

FIXED WINDOWS

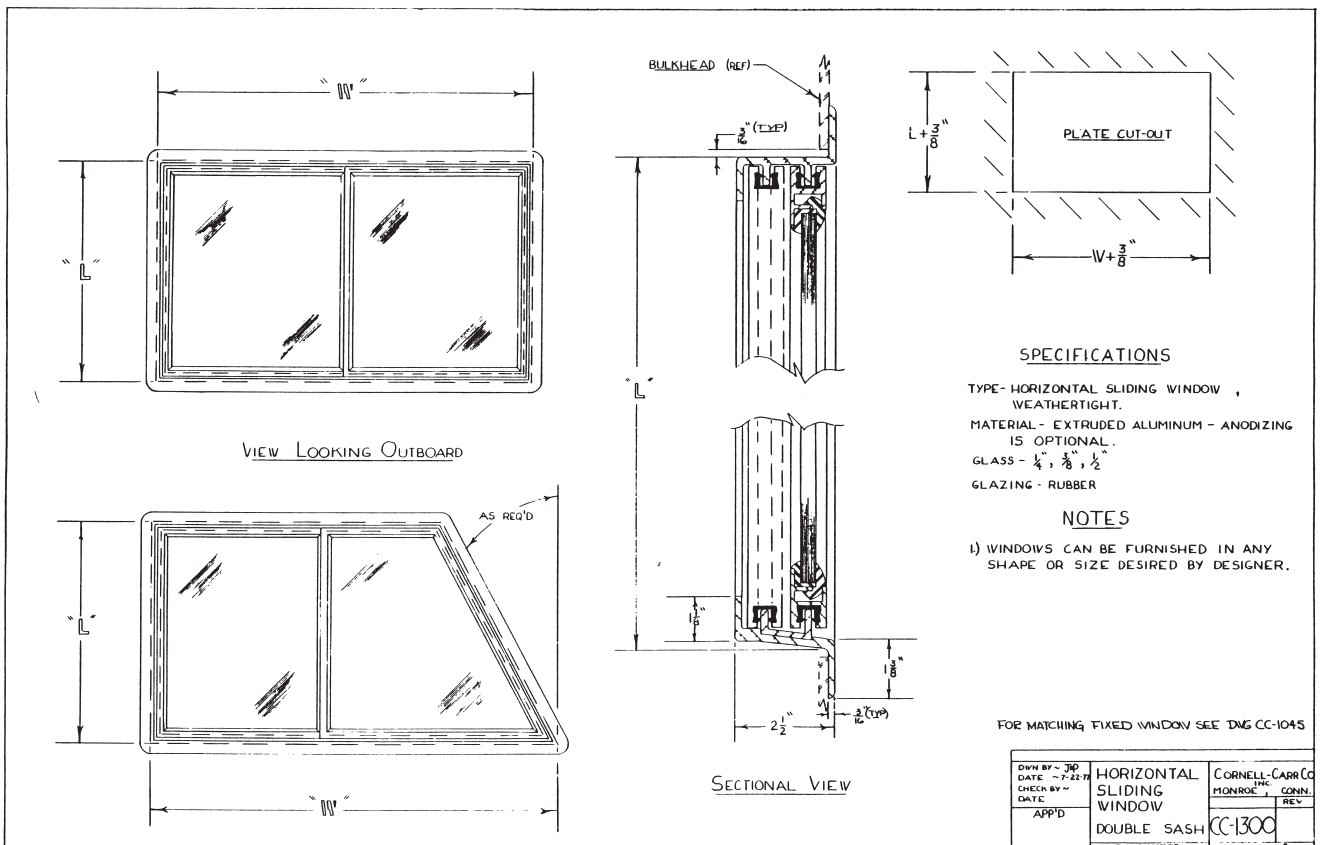
CC 1046





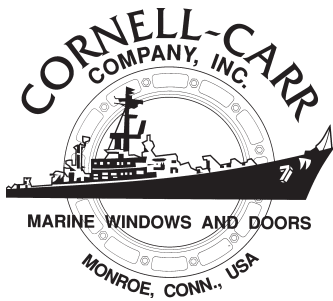
**HORIZONTAL SLIDING WINDOW - FIXED SASH**

**CC 1299**



**HORIZONTAL SLIDING WINDOW - DOUBLE SASH**

**CC 1300**



## ELECTRICALLY HEATED WINDOWS

For the past 18 years Cornell-Carr Company has been manufacturing electrically heated windows designed to meet the severest weather conditions. Since the first heated window was produced for the U. S. Navy, now all naval vessel's pilot houses are equipped with one or more and 90% of the cargo and passenger ships have them. The fly ing spray which in extremely low temperatures causes ice to form instantly on windows is no longer a navigational hazard with the use of ice free, electrically heated windows. External and internal fogging can no longer occur when Cornell-Carr electrically heated windows are installed.

In order to accomplish the heating of these windows a conductive coating is applied to the surface of one panel of glass. This coating is completely transparent and has a high electrical resistance. This coated panel is then laminated to another panel of glass with a vinyl filler sandwiched between. Current passing from busbars located at both ends of the panel supplies the electrical energy to the conductive coating between the laminated glass providing thermal energy which evenly heats the entire glass panel. The heating is controlled by a control box containing hermetically sealed thermostats or imbedded sensors. Either AC 115, 220, 440 volts can be used to heat the panel which can be laminated with various glass thicknesses and configurations.

Cornell-Carr Company manufactures heated windows in a complete assembly which can be installed in the ship's superstructure by means of through bolts. The frames for these heated assemblies can be made of corrosion resistant steel, bronze or aluminum and the glass being glazed within the frame by special rubber channel gaskets fully sealing the entire assembly. These units are manufactured to customer's specifications and meet the requirements of MIL-W-18445C.

### GRAVE MATTERS

If you're dead, you're history. Here are some not-very-grave epitaphs from around the world.

Anna Wallace

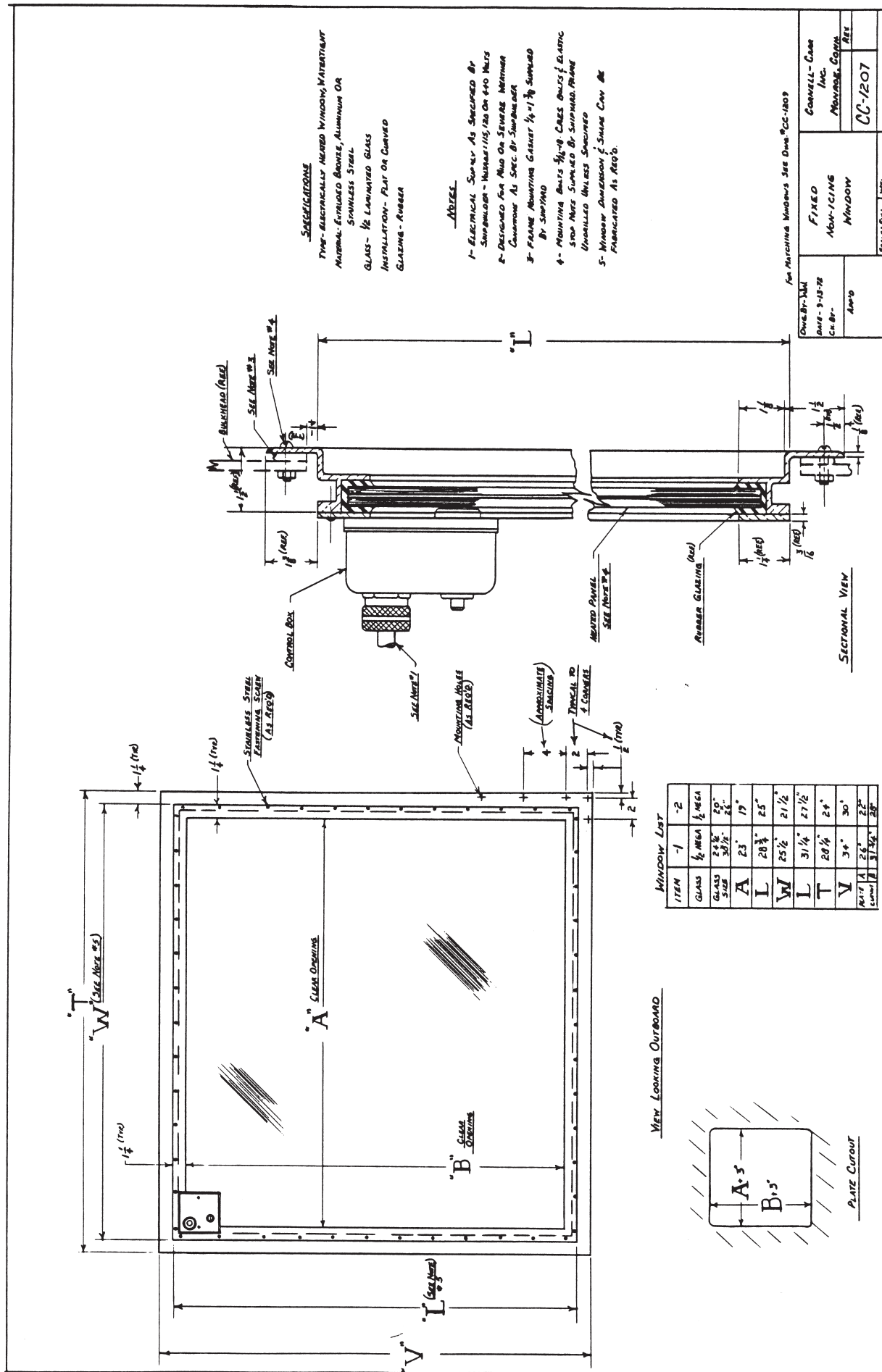
The children of Israel wanted bread  
And the Lord sent them manna,  
Old clerk Wallace wanted a wife,  
And the Devil sent him Anna.

Under the sod and under the trees  
Lies the body of Jonathan Pease.  
He is not here, there's only the pod:  
Pease shelled out and went to God.

A victim of fast women  
and slow horses

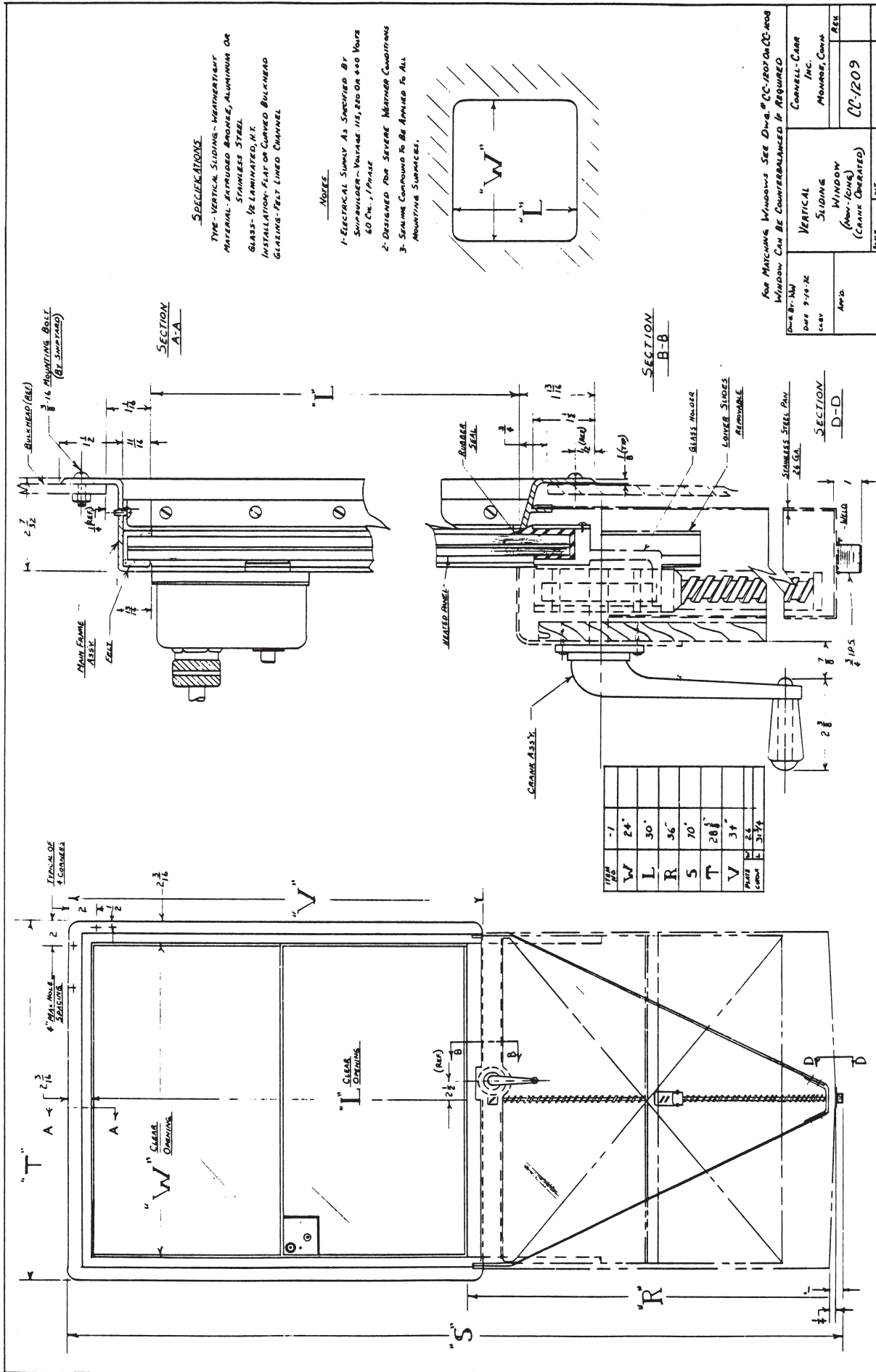
Some come to this graveyard  
To sit and think,  
But I've come here to Rot and stink.

Owen Moore  
Gone away Owin' more Than he  
could pay.









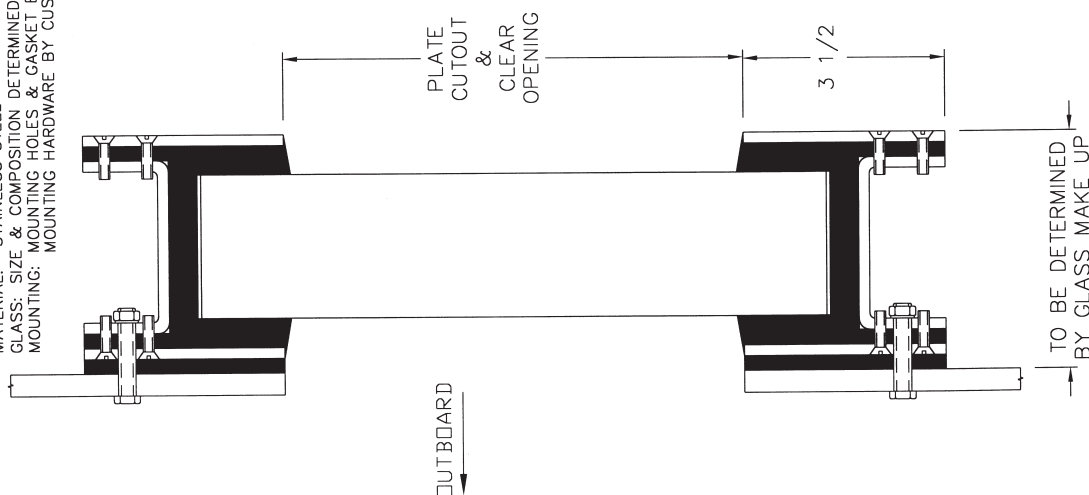
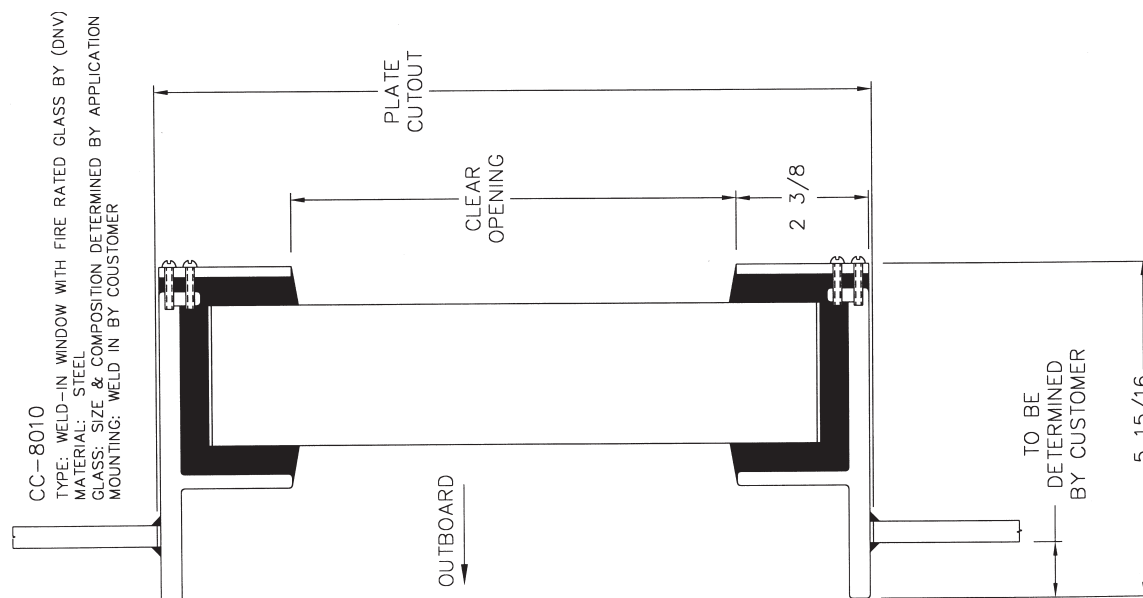
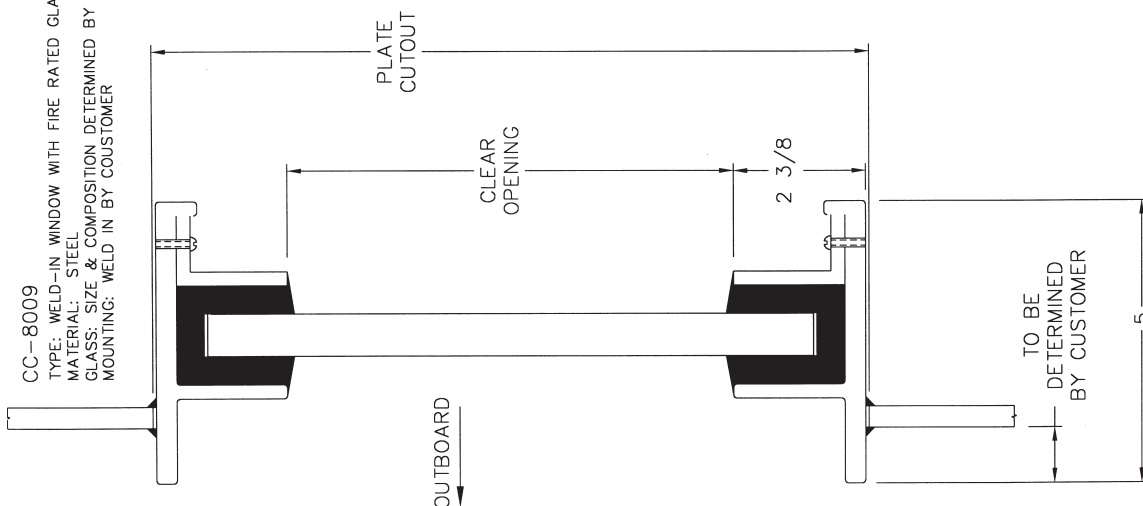
VERTICAL SLIDING WINDOW - NON-ICING - CRANK OPERATED

CC 1209

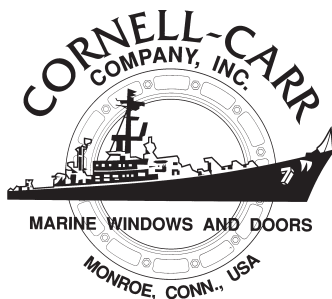
CC-8011

CC-8010

CC-8009



## A - 60 FIRE RATED WINDOWS



## **PENDULUM WINDOW WIPER**

Cornell-Carr Company manufactures a Pendulum Type Airport and Window Wiper which combines simplicity, efficiency and durability. This motor driven wiper can be readily mounted inboard or can be outside mounted. It is built to resist the severe conditions inherent in navigation. Heated arms on inboard mounted wipers or heated pivots on those that are outside mounted are also available. Wipers can be provided with a window washing/anti-ice feature as well as with a radio frequency interference suppression feature.

All parts are made of corrosion resistant material. The unit is powered by a 110/ 120 AC/DC volt, 1/30 or 1/8 HP motor with a variable rheostat speed control and a shut off switch. Various wiper arm arrangements can be furnished including single, dual arms and parallel blade motion.

Also available is our 12, 24, 32 volts model designed for moderate duty for small boats. The wiping angle is set at a 100° swipe, the housing is watertight and all parts are resistant to salt spray and other corrosive environmental conditions.

The wiper can be mounted above, below or at the side of the windshield frame. The drive shaft supplied can be 3", 4", 5" and 6" depending on wall thickness.

|                          |                          |
|--------------------------|--------------------------|
| Standard Navy Wiper -    | CC-5065-Inboard Mounted  |
| (Not Shown in Catalogue) | CC-5086-Outboard Mounted |

### **Kindness**

**Human kindness has never weakened the stamina or softened the fiber of a free people. A nation does not have to be cruel in order to be tough. *Franklin D. Roosevelt***

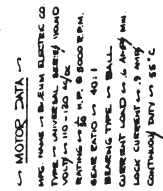
**Kindness is a language the dumb can speak and the deaf can hear and understand. *Christian Nestel Bovee***

**You cannot do a kindness too soon, for you never know how soon it will be too late. *Ralph Waldo Emerson***

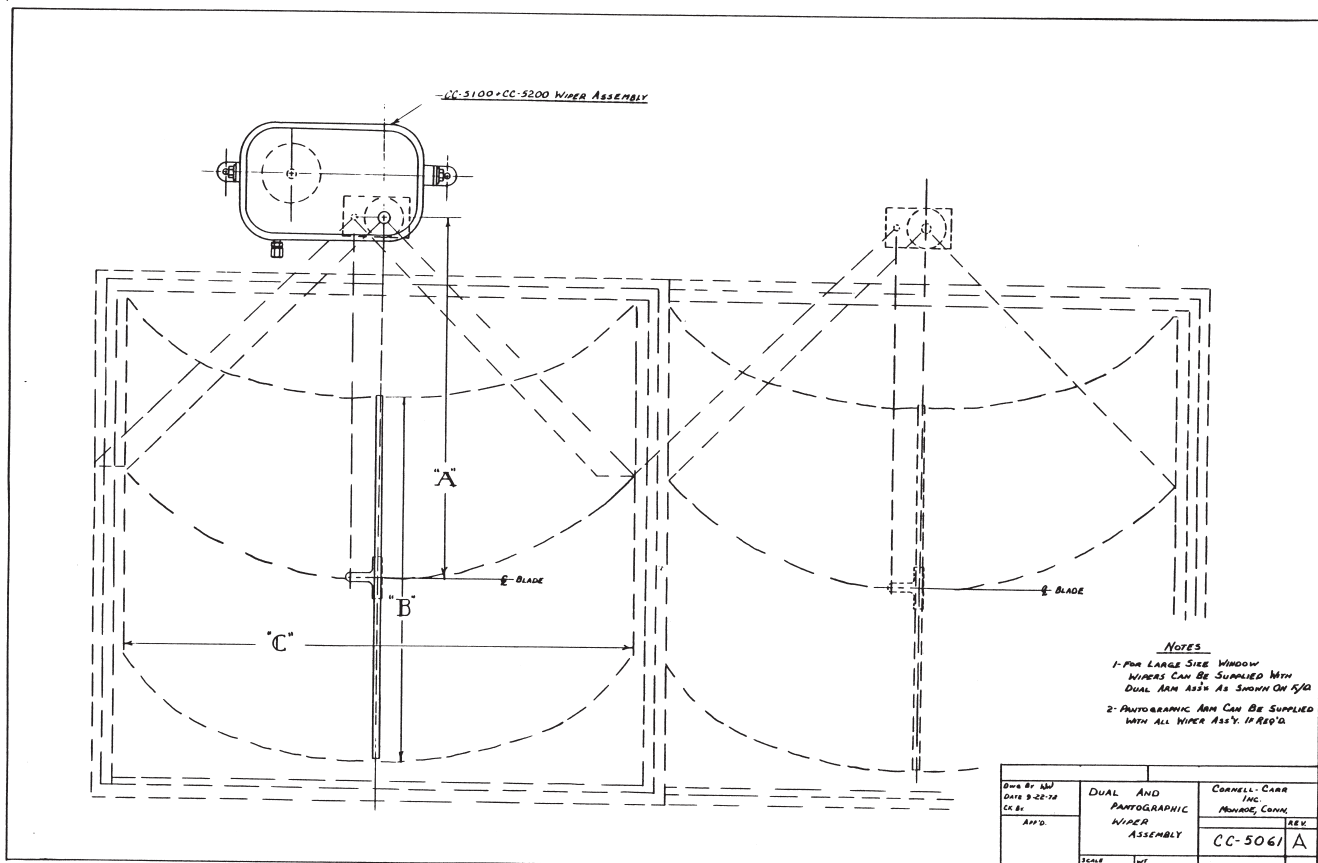
If a farmer has 5 hay stacks in one field and 4 in the other field, how many haystacks would he have if he combined them all in the center field?

One. If he combines all of his haystacks, they all become one big stack.

CC 5200  
CC 5100

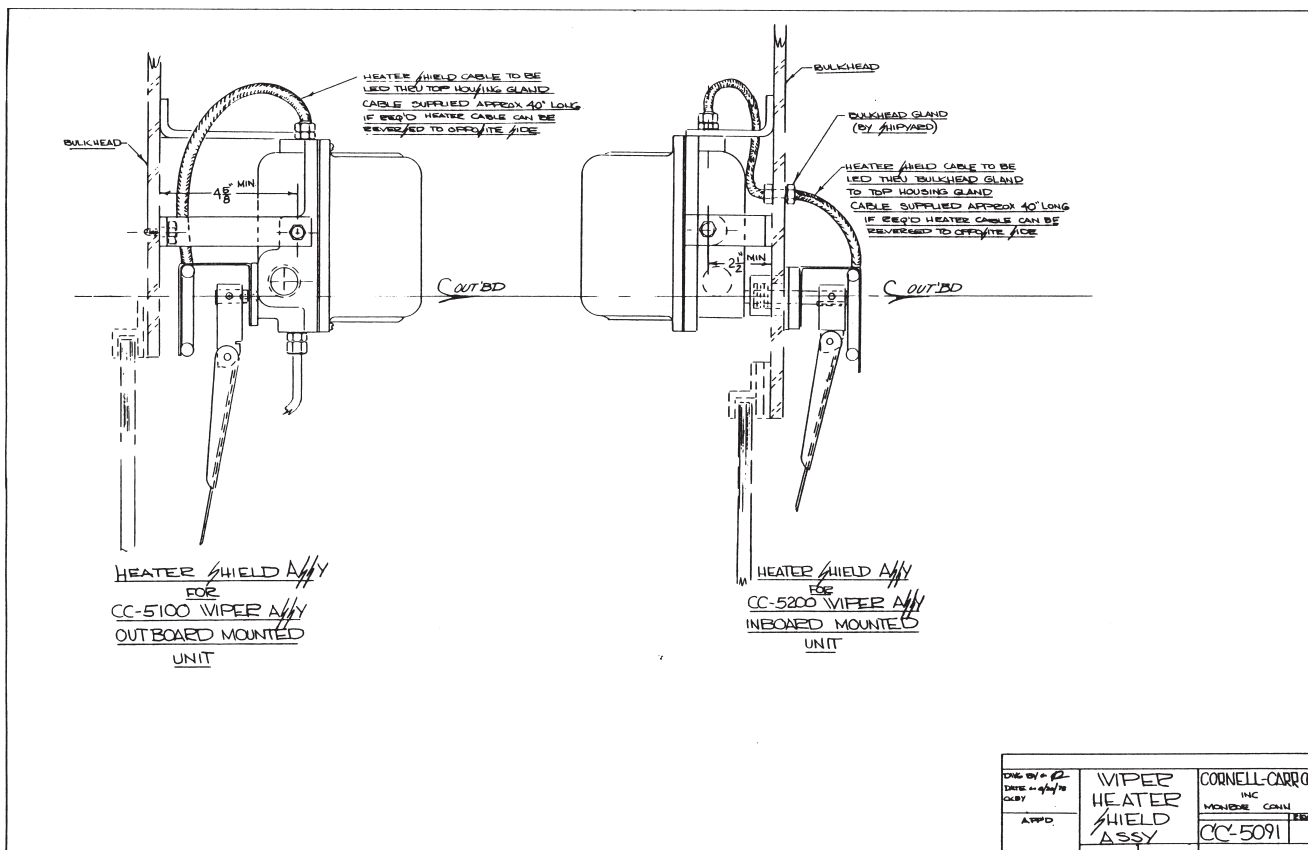






**DUAL AND PANTOGRAPHIC WIPER ASSEMBLY**

**CC 5061**



**WIPER HEATER SHIELD ASSEMBLY**

**CC 5091**

**BULKHEAD**

- LOCATE PUMP SURGE PUMP ON BULKHEAD OR ANY CONVENIENT LOCATION.  
USE PAPER TEMPLATE FOR MOUNTING HOLE LOCATION. DRILL #16 -TAP #12-24 - (2 REEF D)
- LOCATE RESERVOIR MOUNTING BRACKET ON BULKHEAD OR ANY CONVENIENT LOCATION  
USE BRACKET AS TEMPLATE DRILL #16 -TAP #12-24 (2 REEF D)  
SELECT CORRECT BRACKET ANGLE ADJUSTMENT  
SO THAT RESERVOIR IS IN A LEVEL POSITION

- DETERMINE BEST LOCATION FOR MOUNTING NOZZLE TUBE (SEE DETAIL 'X-X') SHAPE THE NOZZLE TUBE (BY HAND) SO THAT WATER STREAM REACH CENTER OF VAPOR AREA. MAKE ADJUSTMENT CAREFULLY TO PREVENT COLLAPSE OF TUBE

NOTE

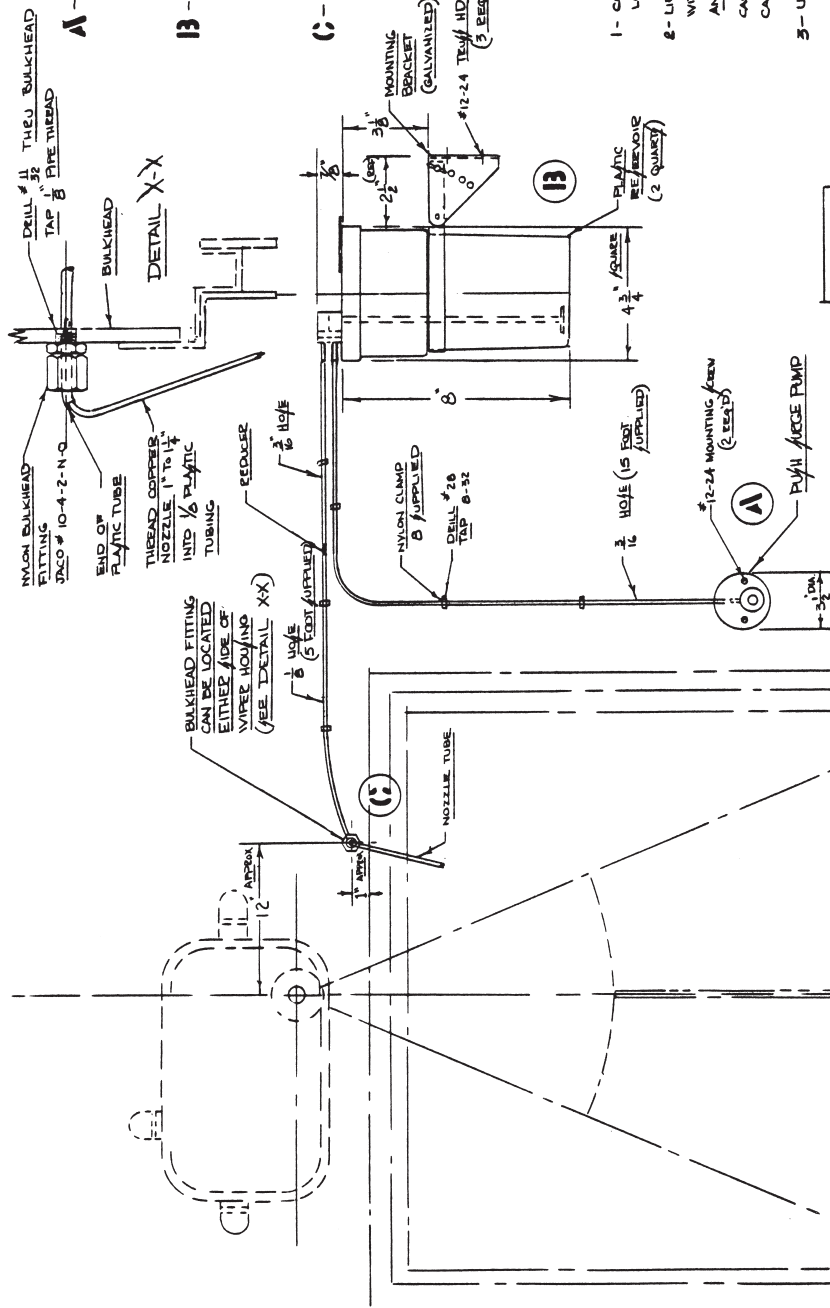
- 1- CUT & INSTALL PLASTIC TUBING AS REQUIRED.  
LOOSE NYLON CLAMPS AS REQUIRED.
- 2- LIFT PUP-CAP ON LID OF RESERVOIR & FILL  
WITH CLEAN WATER OR WIND/WHEEL WAXER  
ANTI-FREEZE (AIRC OR EQUAL)
- CAUTION: DO NOT USE A CHEMICAL WHICH MAY  
CAUSE HAZE TO PAINTED FURN OR WAXED PARTS
- 3- UNITY TO BE INSTALLED ON WINDOW

- 4-UNIT config of:

- 1 - PUMP PRESS PUMP (2-412-24 T.H.M./-1' LONG)  
2 - REVERSE TANK (2 QUARTS) & MOUNTING  
BRACKET (3-412-24 T.H.M./-1' LONG)

C-COPPER 2022BL

- D-NYLON BULKHEAD FITTING  
E -  $\frac{1}{16}$ " DIA. HOLES - 15 FT,  $\frac{1}{8}$ " DIA HOLES - 5 ft  
F - 2 NYLON CLAMPS, (2 - 28-32 THN) -  $\frac{1}{2}$  LONG



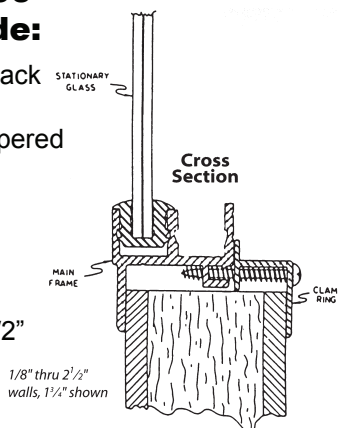
| SCHEDULE | ITEM | TOTAL QUAN. | QUAN. PER VESSEL |
|----------|------|-------------|------------------|
|          |      |             |                  |
|          |      |             |                  |
|          |      |             |                  |
|          |      |             |                  |

|                |               |                |
|----------------|---------------|----------------|
| DATE BY - C    | WINDOW        | CORNELL-CARRCO |
| DATE - 1-11-72 | WASHING       | INC            |
| WORK BY A/C    | ASSY          | MON ROE, CONN  |
| DATE           | HAND OPERATED | REV            |
|                |               | CC-5062        |

CC 5062

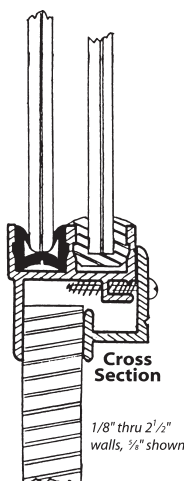
## Features for the Model 200 Stationary Window include:

- Heavy duty satin finish anodized or black painted aluminum construction
- 7/32" laminated or 1/4", 3/8 or 1/2" tempered safety glass
- Clear or tinted glass
- Vinyl weatherseals
- 3" Radius corners
- Available in any size or shape
- Clamp ring mounting for 1/8" thru 2 1/2" Walls
- All stainless steel hardware



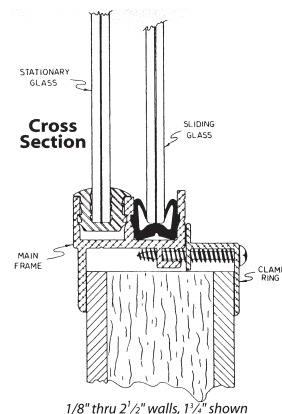
## Features for the Model 210 Sliding Window include:

- Heavy duty satin finish anodized or black painted aluminum construction
- Laminated or tempered safety glass
- 7/32" clear or tinted glass
- Vinyl weatherseals
- 3" Radius corners
- Positive locking handle
- Available in any size or shape
- Clamp ring mounting for 1/8" thru 2 1/2" Walls
- No screen
- These weathertight windows have the forward (outside) glass sliding aft to open
- All stainless steel hardware



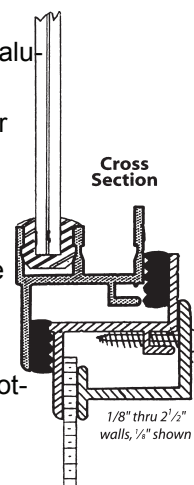
## Features for the Model 220 include:

- Heavy duty satin finish anodized or black painted aluminum construction
- Laminated or tempered safety glass
- 7/32" clear or tinted glass
- Vinyl weatherseals
- 3" Radius corners
- Positive locking handle
- Available in any size or shape
- Clamp ring mounting for 1/8" thru 2 1/2" walls
- These weathertight windows have the AFT (inside) glass sliding forward to open
- All stainless steel hardware



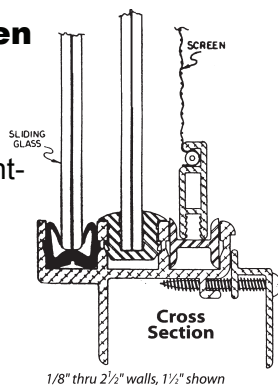
## Features for the Model 230 Hinged Window include:

- Heavy duty satin finish anodized or black painted aluminum construction
- 7/32" safety glass, laminated or tempered, clear or tinted
- Vinyl and foam rubber weatherseals
- 3" Radius corners
- Stainless steel and chrome plated brass hardware
- Adjustable dogs for positive closure
- Available in any size or shape
- Available full swing out or top portion swing out, bottom portion fixed
- Clamp ring mounting for 1/8" thru 2 1/2" walls
- Double gasket construction



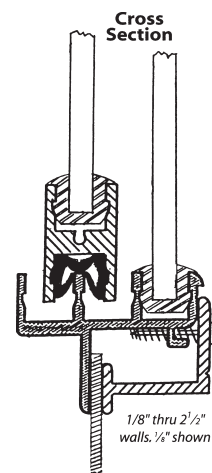
## Features for the Model 300 Sliding Window with Sliding Screen include:

- Sliding removable screens
- Heavy duty satin finish anodized or black painted aluminum construction
- Laminated or tempered safety glass
- 7/32" clear or tinted glass
- 3" Radius corners
- Fiberglass screen cloth
- Positive locking handle
- Available in any size or shape
- Clamp ring mounting for 1/8" thru 2 1/2" walls
- All stainless steel hardware



## Features for the Model 310 Sliding Window include:

- Heavy duty satin finish anodized or black painted aluminum construction
- 7/32" laminated or 1/4", 3/8" or 1/2" tempered safety glass
- Clear or tinted glass
- Vinyl weatherseals
- 3" Radius corners
- Positive locking handle, rivited in place
- Available in any size or shape
- Horizontal or vertical sliding
- With or without stationary screen
- Clamp ring mounting for 1/8" thru 2 1/2" walls
- All stainless steel hardware



## Ordering Information

Advance planning of your requirements can expedite, your ordering process. By answering the following questions you can save your valuable time.

- What type of window is required? (*fixed, sliding, swing out etc.*)
- What are the actual dimensions of the rough opening in your wall? (*Height x width*) (*template or drawing may be required*)
- What type of glazing do you require? (See below)
- How will you mount the window? (*Clamp ring or flange bolted*)
- What is your overall wall thickness? (*For clamp ring mounting*)
- Do you require screens? (*Sliding screens-Model 300*) (*Fixed screens-Model 220 & 310*)
- Where will this window be mounted? (*Left or right side, front or rear*)
- 3" radius corners or mitered corners?



## Glazing Options

**First**, choose the type of glazing you require from the list below.

- Laminated safety
- Tempered safety
- Polycarbonate
- Acrylic

**Second**, choose the tint you require

- No tint-clear
- Blue/green tint
- Solar bronze
- Solar gray
- Graylite 14



## PRODUCT INFORMATION:

## DECCA STRAIGHT LINE WIPERS

### KEY FEATURES & BENEFITS

- Suitable for all ship categories
- Robust and smart design
- Cleans up to 90% of the window
- Fully adjustable wiper arm
- Stroke length up to 350 cm
- Voltage: AC (110/220V) or DC (24V)
- Easy installation and maintenance
- Variable speed and intermittent
- Automatic parking function
- Heated wiper casing
- Optional water spray with air purge
- Optional dual arm setup

### THE HEAVY DUTY ALTERNATIVE

Decca straight line wiper systems are built in Norway and engineered to survive the rigors of the North Sea. With unique technical design features and built with only high quality materials, Decca wipers meet the demand for efficient and reliable wiper operation in extreme weather conditions.

### VISIBILITY

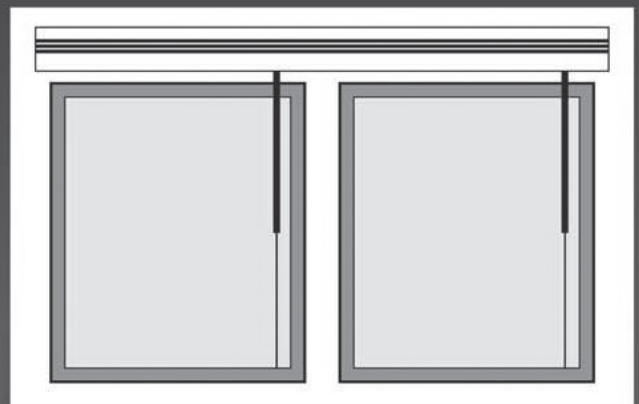
Modern shipbuilding design takes full account of visibility requirements. Larger wheelhouses with an omni-directional view are part of this trend. As a result, there is an increase in window area that must be kept clear in all weather conditions. Decca straight line wipers are designed to meet these demands with reliable and efficient operation in heavy rain, storm conditions, sleet, and even snow.

### CUSTOM DESIGNED WIPERS FOR ALL WINDOW SHAPES

The stroke length can be set to any distance from 45 to 350 cm, and wiper blades range from 40 to 100 cm. For tall windows, an additional wiper can be installed below the window frame, increasing the wiped area by up to 100 percent. For wide windows, the wiper unit can be equipped with an extra arm and wiper blade. The dual arm setup allows a longer combined stroke length compared to the standard unit. One dual wiper unit can also be set to cover two adjacent windows.



Decca Wipers installed on the "The World".



Decca dual wiper covering two adjacent windows.

## WIPER ARMS

For light duty (LD) applications, the lightweight and minimalist single arm is often the preferred choice. The LD arm supports wiper blades up to 800 mm. Besides more stability and ruggedness, the dual heavy duty (HD) alternative also features a more advanced spring tension adjustment. The HD arm supports wiper blades up to 1000 mm.

## DECCA CONTROL SYSTEMS

Based on variables such as the number of wiper units, wiper groups and water spray zones, the control system is individually adapted to meet the relevant requirements for each vessel. There are two controller series available.

### THOR CONTROLLER SERIES

- Supports up to 40 wipers
- Supports up to 4 separate wiper groups
- Supports up to 4 water spray zones
- Optional air purge function
- Heater function with LED indicator
- Step-less motor speed control
- Step-less intermittent timer
- Heavy duty toggle switches
- Custom versions available on request

### ODIN CONTROLLER SERIES

- Supports up to 100 wipers
- Supports up to 5 separate wiper groups
- Supports up to 5 water spray zones
- Built-in air purge function
- Heater function with LED indicator
- Adjustable speed and intermittent
- Soft-touch keypad
- LED indicated speed setting for each group
- Dimmer (night mode) function
- Auto-resume function in standby mode

## DECCA STRAIGHT LINE WIPERS



LD single arm and HD double arm, both in stainless steel.



Thor controller series.



Odin controller series.



## TECHNICAL DETAILS:

### LIST OF MATERIALS

- Main structure: Corrosion resistant anodized aluminium
- Wiper arm: Stainless steel (316L)
- Track rollers: Hardened polyamide
- Driving belt: Reinforced polyurethane
- All other parts: 316L or corrosion resistant anodized aluminium

### UNIQUE CABLE CONNECTOR

The waterproof (IP67) cable connection system is a unique feature with Decca wiper systems. This allows the cable to be connected or disconnected from the wiper unit within seconds. Combined with the easily accessible wiper fixing brackets, it takes less than five minutes to detach a wiper unit from the bulkhead. Simple maintenance work that would otherwise take several hours due to poor working conditions on site can be efficiently executed indoors for your convenience.

### WATER SPRAY SYSTEM

Decca wipers come with an optional water spray system that consists of 12 mm piping and nozzles, all in stainless steel (316L). The piping can be fitted onto the wiper fixing brackets, or it can be installed directly onto the bulkhead.

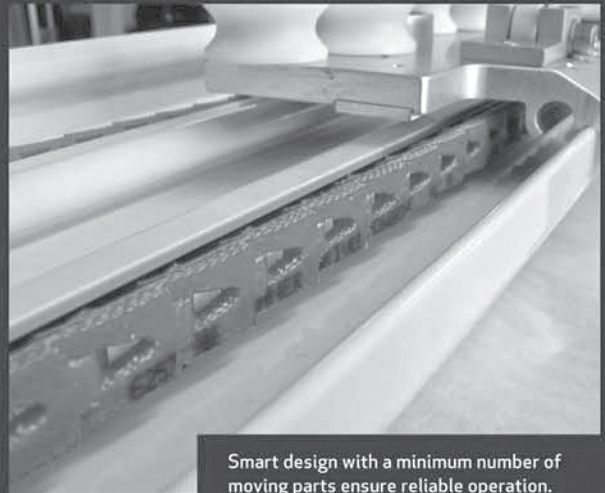
### AIR PURGE SYSTEM

The optional air purge system prevents trapped water from freezing within the pipes or nozzles at sub zero temperatures. The Decca air purge system consists of solenoid air valves and an electronic valve controller with a programmable timer function (1 to 60 seconds).

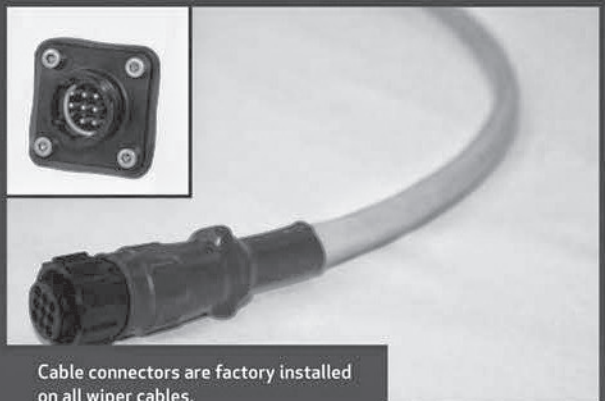
### MOTOR

The featured heavy duty motor is specifically engineered for maximum durability. Thanks to innovative technology, this motor delivers maximum torque throughout the entire speed range, which translates to a linear and powerful output (110Nm). The motor is installed directly onto the wiper main structure, eliminating noise and the need for a complex driveshaft bulkhead penetration. For weather protection, all motors are sealed (IP66).

## DECCA STRAIGHT LINE WIPERS



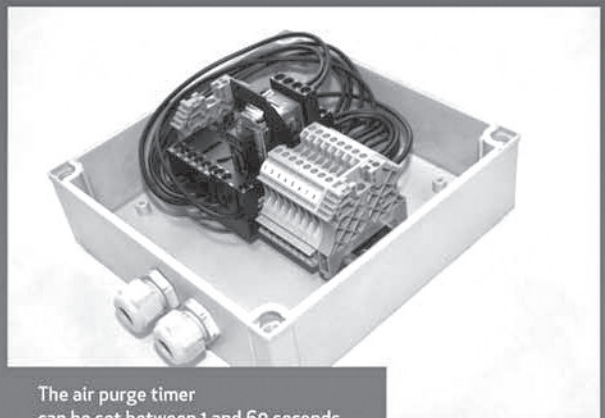
Smart design with a minimum number of moving parts ensure reliable operation.



Cable connectors are factory installed on all wiper cables.



Water spray system in stainless steel.

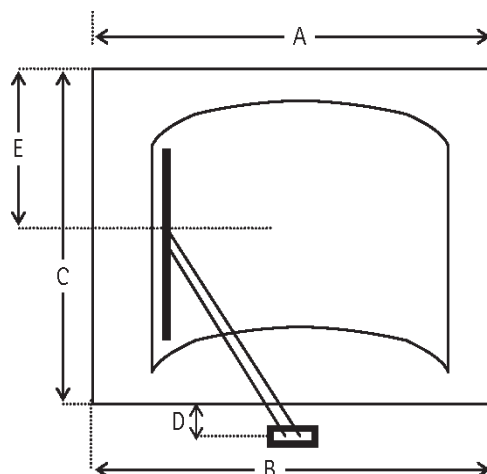


The air purge timer can be set between 1 and 60 seconds

# WINDSHIELD WIPER QUESTIONNAIRE **imtra** MARINE PRODUCTS

## Contact Information

Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_  
 Tel: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-Mail: \_\_\_\_\_  
 Owner's Name: \_\_\_\_\_  
 Yacht Name: \_\_\_\_\_



## Motor Voltage and Location

- ☐ 12VDC  
☐ 24VDC  
☐ Below Window  
☐ Above Window

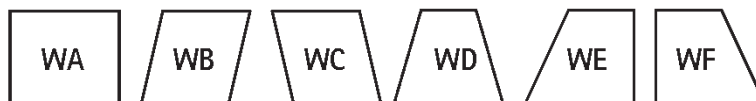
## Switchgear Selection

- ☐ Electronic Control Panel (Synchronized)  
☐ Electronic Wiper Switch (Synchronized)  
☐ Individual Switch with Intermittent  
☐ Individual Switch without Intermittent  
☐ No Switchgear Needed

## Washing System Details

- ☐ Complete System from Ship's Supply  
☐ Complete System from Reservoir  
☐ Bulkhead Mounted Jet  
☐ Arm Mounted Jet  
☐ No System Required

Window Type:



## Window Dimensions

|                                | Port | Port/Center | Center | Starboard/Ctr | Starboard |
|--------------------------------|------|-------------|--------|---------------|-----------|
| Window Type (see above)        |      |             |        |               |           |
| Window Height [C]              |      |             |        |               |           |
| Width of Glass/Top [A]         |      |             |        |               |           |
| Width of Glass/Bottom [B]      |      |             |        |               |           |
| Motor Setback* from Window [D] |      |             |        |               |           |
| Eye Level [E]                  |      |             |        |               |           |
| Bulkhead Thickness             |      |             |        |               |           |

\* The "Motor Setback from Window" is the distance between the inside edge of the windshield frame and the center of the motor shaft

☐ Please check if wiper motor mounting position is not parallel with windshield. If known, what is the angle between them: \_\_\_\_\_

## Additional Comments:



## WINDSHIELD EQUIPMENT

### AFI WIPER MOTORS

#### HEAVY DUTY MOTORS

##### AFI-2000

##### Waterproof Wiper Motor

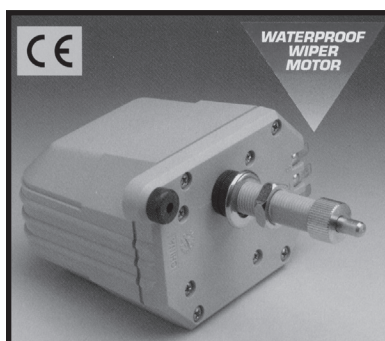
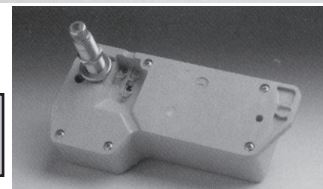
- Easily powers up to 24" x 24" arm/blade combinations Factory pre-set sweep of 80° or 110° adjustable to 45°, 60°, 80° or 110°
- 5/8" diameter shaft
- Available in two shaft lengths: 1-1/2" and 2-1/2"
- Fully sealed waterproof housing made of UV stabilized, high-temperature, high-impact thermoplastic
- 12 volt heavy-duty motor with anti-rotation drive shaft Knurled drive shaft and solid brass arm drive nut Adjustable right or left self parking
- Coast to park
- Includes 5 amp fuse and holder (no on/off switch)
- RF shielded circuitry
- Maximum current draw: 5 amps
- Compact size - 7-3/4" L x 3-7/8" W x 2-3/8" H
- Weight: 2.7 lbs.
- Made in the U.S.A.

**3 Year Warranty**



#### 1-1/2" Shaft Length

| 80° Sweep | 110° Sweep |
|-----------|------------|
| 36280     | 36210      |



#### 2-1/2" Shaft Length

#### WINDSHIELD FRAME MOUNT

| 80° Sweep | 110° Sweep |
|-----------|------------|
| 35500     | 35510      |

#### STANDARD MOTORS

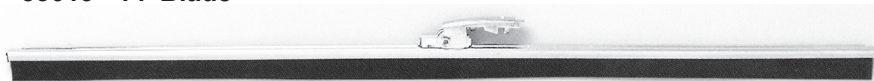
- Powers up to 14" x 14" arm/blade combinations Waterproof housing made of UV stabilized high-temperature, high-impact thermoplastic Maximum current draw: 2 amps
- Adjustable right or left self-parking Shaft diameter: 1/2"
- 80° or 110° adjustable sweep
- For external use in open cabin boats

### AFI WIPER BLADES

#### STANDARD STRAIGHT BLADE

- Stainless steel
- Not for use with deluxe arms

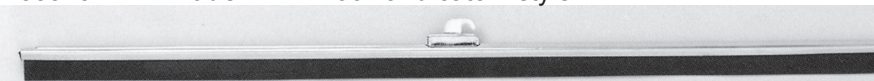
33001 11" Blade  
33019 14" Blade



#### CLASSIC STRAIGHT BLADE

- Stainless steel
- Replaces most standard blades made before 1990

33901 11" Blade "Hook and catch" style  
33911 16" Blade Bolt-on style  
33919 14" Blade "Hook and catch" style



#### DELUXE CURVED BLADE

- Stainless steel
- Works well on curved or flat windshields

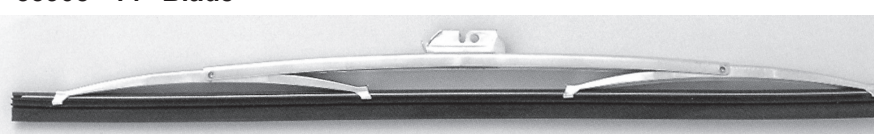
33004 11" Blade  
33005 14" Blade  
33015 16" Blade  
33016 18" Blade  
33017 20" Blade



#### CLASSIC CURVED BLADE

- Stainless steel
- "Hook and catch" style
- Replaces 11" and 14" deluxe blades on boats manufactured before 1990

33904 11" Blade  
33905 14" Blade



He was lying there in the weeds and tall grass just beyond the side lot, and he was watching carefully the side door of the house. He was thinking of all of the miserable mixed-up things he had ever done in his life, and what was now the most contemptible, because he was about to kidnap a little two-year-old red-headed girl. He couldn't believe he had come to this. He had time to wait. He had cased the joint and knew that every mid-afternoon she came out to play in the yard, and there he could grab her and hasten away.

"What a life," he thought. When he was five years old his Hoosier farmer father died. At fourteen he quit school and hit the road. He worked odd jobs as a farmhand and hated every one of them. He got a job as a streetcar conductor and hated that. At sixteen he lied about his age and joined the army - and he really hated that! After one year he got out. He tried his hand at black-smithing and failed at that. He sold insurance - and failed again. Sold tires and failed at that. Then he got a job as a locomotive fireman on a train. He liked that and thought he had finally found his niche.

He got married at eighteen. A few months later his wife announced she was pregnant. That was the same day he announced to her he had been fired ... again. When he was out job hunting some time later, his wife gave away all of their meager goods and went home to live with her folks - and then the depression came. He just couldn't win for losing, says Paul Harvey. He was a born loser.

Now here he was lying in the weeds planning a kidnaping! For the sake of his memory, we should note that it was his two-year-old daughter he was going to kidnap from his departed wife. That too failed; the little girl didn't come out to play that day! We wouldn't want to break his string of failures. But it didn't matter, because the next day the wife and the little girl came back to live with him. He got a job as chief cook and bottle washer at a restaurant in Corbin, and that looked very promising because, you see, the state highway was scheduled to come by there. This, indeed, might be the pot of gold. Then the state changed its plans, and the state highway went somewhere else.

The years slipped by and then one day, for the first time he felt old when he opened an envelope the postman gave him which contained his first Social Security check - \$105. Harlan looked at that check and something happened inside of him. He got mad, and said, "Nuts, now even the government is feeling sorry for me." They said he had had enough times at bat. It was time to quit; it was time to give up - and he was angry.

He took the check that represented the sixtyfifth candle on his cake and went out and started all over again. He started his own business - that's what Harlan did. That business, started when most other men stopped, prospered. Some of you know already about whom I am speaking - Harlan Sanders. In case you don't immediately recognize the name, that's Colonel Harlan Sanders. The company he started with a \$105 Social Security check is called Kentucky Fried Chicken. When he was eighty-six years of age he looked down on a global enterprise with over 9,000 restaurants around the world. "And that," says Paul Harvey, "is the rest of the story." Here was a man who got a second chance at life when most other people are cashing in, and he made good at it.