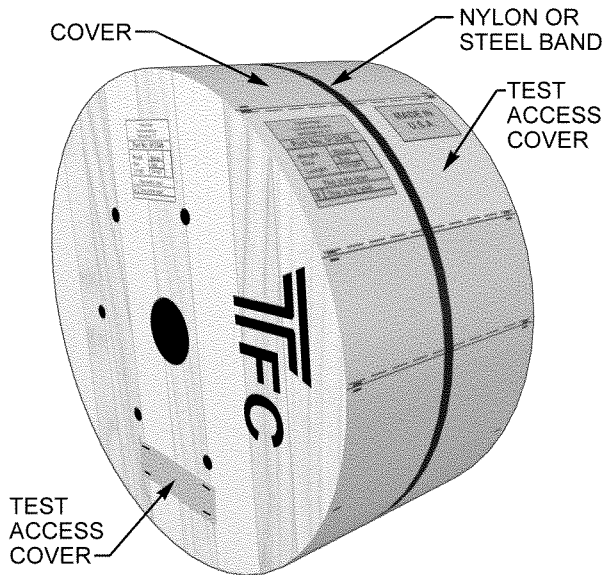


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Semiflexible coaxial cables can be easily damaged if the reels of cable are not stored and handled properly upon receipt from the manufacturer. Reels of cable are heavy and bulky so care must be taken to avoid personal injury. Protective safety equipment is recommended such as steel toed shoes, heavy gloves, back supports, and safety glasses.

## GENERAL

Reel wrappers play an important role in protecting cable from damage both during shipment and in subsequent handling and storage procedures. Cable is shipped with a wrapper around the circumference of the reel, between the rolling edges of the flanges. Underneath, there are approximately two inches of free space (freeboard) between the wrapper and the cable providing a buffer zone of protection. The wrapping will prevent damage from minor impacts resulting from reels rolling into each other or from rolling the reel over rough surfaces. Once the wrapping has been completely removed, the cable is susceptible to damage. Only the small portion of the removable cover marked "REMOVE FOR TEST" should ever be removed upon receipt. The main wrapping should not be completely removed until the cable is ready to be installed in the field.

After inspection or testing, the wrapping should be replaced to minimize future damage. However, it is recommended that, especially for unjacketed cables, the

"REMOVE FOR TEST" portion of the wrapper be discarded to allow for air flow under the wrapper. This will minimize the effects of condensation, staining, discoloration, or corrosion of the aluminum surfaces under the wrapper. (Please refer to Appendix III, Technical Note 1050, *Aluminum Discoloration, Water Staining and Corrosion.*) Reel wrap may be reattached using standard roofing nails.

## VISUAL INSPECTION

In addition to making sure that the proper cable was shipped from the factory, it is necessary to inspect each reel for possible shipping damage as it is unloaded. Usually, if there is no visible sign of damage to the reel wrapper or reel flange, the cable is most likely undamaged. However, if there is any doubt, remove the wrapper carefully and visually examine the cable for any signs of damage such as dents, punctures or flattening.

Times Fiber Communications, Inc. will assist receiving personnel with the filing of loss and damage claims against a delivering freight carrier.

## ELECTRICAL INSPECTION

All cable has been thoroughly tested in accordance with current and applicable industry specifications at the factory prior to shipment. Generally, no retesting is necessary unless there is some concern about the possibility of transit damage.

If testing is desirable, a removable cover marked "REMOVE FOR TEST" is provided on the surface of the reel flanges. There is also a cover on the side of one of the two flanges. Removal of these sections of wrapper gives access to the factory prepared cable ends used for the original factory acceptance testing. Care should be taken with the bottom end of the cable (the end of the cable accessible through the side of the flange) since it can easily be bent and kinked against the reel making Structural Return Loss (SRL) testing results invalid. After any testing, the protective cable end caps should always be replaced.

Although there are many types of test equipment available for testing cable SRL and high frequency attenuation, the Hewlett Packard Model 8711B RF Network Analyzer (or equivalent) very closely emulates the factory testing procedures. The HP 8711B is available with software-

based test routines for SRL, attenuation, and fault finding. These are detailed in the manufacturer's instruction manual and should be followed exactly to obtain a proper and accurate test. Also, it is important to utilize precision high frequency test connectors.

If testing for cable high frequency attenuation, be sure to remember that cable losses are highly dependent on temperature and that catalog values of attenuation are always given at a temperature of 68°F (20°C) and must be corrected to a close approximation of the actual temperature of the cable while it is being tested. As stated in "The Cable Book" with the attenuation data for each size of cable, "Attenuation increases with increasing temperature and decreases with decreasing temperature at the rate of 0.1%/°F (0.18%/°C)".

Please refer to Appendix III, Technical Note 1069, *Testing CATV Cable to 1GHz*, for more detailed information on testing theory and methodology.

## RECEIVING

### **Unloading**

While unloading the contents of a truck or shipping container, it is important that reels of cable never be dropped in any manner. The weight of the reel and cable may cause a deflection of the reel flange when it strikes the landing surface causing a flattening deformation of the cable in the wraps adjacent to the deflected flange. The reels must be rolled from the truck onto a receiving platform which is the same height as the tailgate of the truck or container. It is not recommended to unload a truck or container by rolling reels off the floor and onto a pile of automobile or truck tires.

If a platform is not available, arrangements should be made to obtain a forklift or lift gate truck so that the reels do not have to be dropped. Alternatively, an inclined ramp can be easily and inexpensively fabricated locally from readily available lumber. Metal ramps are commercially available for more permanent applications.

When using ramps, reels should never be allowed to roll out of control. Never step in front of a reel rolling down a ramp. Also, roll each reel away from the bottom of the ramp before handling the next reel.

### **Stacked Reels**

As a general policy, semiflexible cable is shipped in trailers, stacked, unbanded and flat on the reel flange on the trailer floor. The stacks are either three reels high (for reels of 48 inches and greater in diameter) or four reels high (for reels up to 44 inches in diameter).

A forklift with 48 inch forks that are thin at the tips is recommended for receiving cable loaded flat on the reel flange.

With the forks raised and tilted forward until the tips of the forks touch the floor of the trailer, proceed into the trailer and slide the forks under the nearest stack of cable. If the stacks are four high, the cable is on 44 inch or smaller reels and caution must be used so that adjacent stacks are not punctured with the 48 inch long forks.

Once the forks are under the cable, tilt the forks back so they are parallel to the trailer floor while lowering them at the same time. The load should be stable enough at this point to transport the cable out of the trailer.

If, prior to shipment, it had been determined that there would be a forklift available but no loading dock, the cable may have been shipped stacked and banded to pallets. These pallets may be moved to the rear of the trailer with a standard manual pallet jack. This method is also advantageous if it is desired to reship the cable to another location in pallet sized lots.

### **Reels on Rolling Edge**

For those locations not equipped to handle reels in stacks, semiflexible cable is shipped on the rolling edges and may be received as either single or double layered, braced to the trailer floor. Care must be used in removing the bracing and dunnage to avoid damaging the cable.

Reels may be removed by rolling them manually to the rear of the trailer or they may be removed with a forklift. The forks should be spread in such a manner that the reel will be cradled in the space between the forks when the forklift picks the reel up from the flange end. This will minimize the possibility of damaging the cable.



If there is no loading dock, reels may be rolled to the rear of the trailer and cradled as above to remove them from the trailer.

**A reel should never be unloaded by dropping from the rear of the trailer onto the ground or even onto a stack of tires. This can cause permanent damage to the cable.**

The required method of shipment (stacked or rolling edge shipment) to specific locations must be communicated to TFC so proper loading procedures can be followed.

Cable should be inspected for physical damage immediately upon receipt. Any discrepancies, such as damage, incorrect reel count, etc., should be noted on the freight bill of lading by receiving personnel at the time of unloading.

Cable shipped in truckload quantities is less prone to damage than cable shipped on "Less Than Truck Load" (LTL) carriers which is rehandled at consolidating terminals en route to shipping destinations. Rehandling increases the chances for damaged cable.

Times Fiber Communications, Inc. will assist receiving personnel with the filing of loss and damage claims against a delivering freight carrier.

Special unloading circumstances may be addressed in the TFC Load Plan Book either as a specific or general Load Plan. Discuss this with your TFC Sales Representative or with the TFC Customer Service Department.

## STORAGE

As previously discussed, reels of cable must remain properly wrapped to prevent damage from careless handling during storage. However, even this wrapper will not protect the cable from forklift impacts or similar carelessness.

Reels left on their rolling edges should be lined up in rows with the flanges touching each other so the flanges do not overlap and accidentally damage the cable. If storage space is limited and it becomes necessary to stack reels to conserve room, follow the guidelines below.

### **Stacking Reels**

Although cable may be stored either in stacks or on the rolling reel flange edge, storing cable in the stacked configuration is by far the most efficient for warehouse floor space utilization.

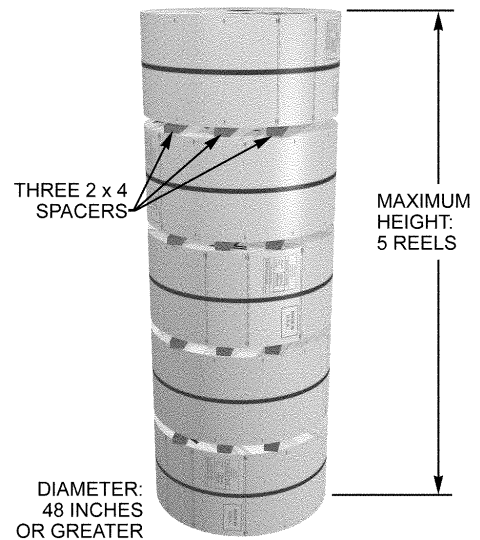
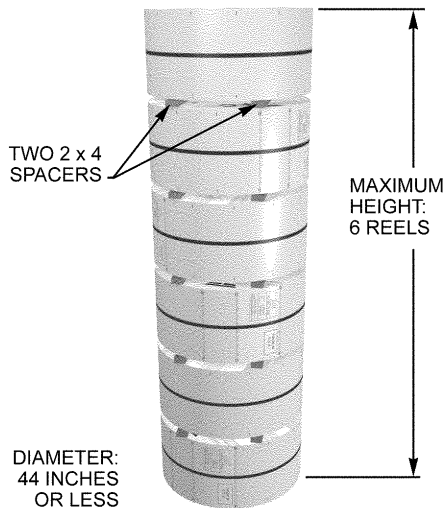
If cable is received in stacks, the stacks may be transported intact and stored in the appropriate location with no additional handling required.

Cable may be stored in stacks higher than the stacks on the delivering trailer. For reels up to 44 inches in diameter, stacks of up to six reels are appropriate. For reels of 48 inches diameter or greater, stacks of up to five reels are acceptable. With these higher stacks, reel retrieval may be simplified by inserting 2x4 board spacers between the stacked reels so that forklift forks can be inserted easily between individual reels.

**CAUTION: DO NOT STACK REELS HIGHER THAN RECOMMENDED. IRREPARABLE DAMAGE TO THE CABLE MAY OCCUR.**

### **Stacking Reels Up To 44 Inches In Diameter**

Two 2x4 boards no longer than the reel flange diameter should be inserted between cable reels when stacking. Place these boards on their broad 4 inch side, in parallel. They should be over the flange bolts and as far from the edge of the flange as possible. The internal reel drum should absorb the weight of the top reels. Reels may be stacked a maximum of six high.



## Stacking Reels Received On The Rolling Edge

Although cable may be stored on the rolling edge, this technique is usually employed when warehouse space is plentiful or when quick turns are anticipated.

Reels which were received on the rolling edge may be stored flat by tipping the reel onto raised forklift forks and then gently lowering the forks to the floor, tipping the reel from the rolling edge to the flat in the process.

This process requires a minimum of two people for reels up to 44 inches in diameter and three people for reels of more than 48 inches in diameter. For either situation, one person operates the forklift while the other one or two people tilt the reel.

## Stacking Reels 48 Inches Or Greater In Diameter

Three 2x4 boards, no longer than the reel flange diameter, should be used between reels of 48 inches or greater when stacking. Place two of these boards on their broad 4 inch side, in parallel, over the flange bolts as far from the edge of the flange as possible. The drum should absorb the weight of the top reels. Place the third board parallel to and between the other two boards, directly over the reel arbor hole. Reels may be stacked a maximum of five high.



Once the reel is flat on the forks, the 2x4 boards are placed on the top flange as previously described and the reel can be added to a stack.



## RETRIEVAL FROM STACKS

### **Retrieval From Stacks With Board Spacers**

Insert the forklift forks between the lower flange of the top reel on the stack and the top flange of the next reel down and lift the reel slightly. Reverse (back up) the forklift and remove the reel from the stack.



To stand the reel upright onto the rolling edge, lower the forks containing the reel gently to the floor and back the forklift away until only about 40% of the reel is supported by the forks. Now, slowly raise the forks and tip the reel into an upright position on the rolling edge. This technique requires only the forklift operator.

### **Retrieval From Stacks Without Board Spacers**

Tilt the forklift forks slightly forward and place the tip of the forks between the flange of the reel to be retrieved and the reel on which that reel rests. Drive slowly forward and the reel to be retrieved will slide gently onto the forks. The reel can be placed upright as described in the preceding paragraph.

### **Retrieval From Rolling Edge Storage**

Using a forklift, manually roll the reel to an area which is accessible to a forklift and then cradle the reel with the forks as described in an earlier paragraph.

If no forklift is available, manually roll the reel from the storage location to the staging area. Be careful not to roll the reel over any objects on the floor which protrude more than 2 inches. (Remember that there are only two inches of freeboard.) Roll and turn the reel in a safe manner to avoid the possibility of personnel injury.

## DEPLOYMENT

### **To Other Storage Locations**

Special care must be taken when deploying semiflex cable via common carrier to other locations.

It is recommended that, for small shipments made by LTL carriers, the cable be shipped flat and banded to pallets if the consignee is equipped to handle palletized stacks of cable.



For those locations requiring cable on the rolling edge, it is recommended that the cable be shipped as a single layer

on a wood-floored trailer with rows of like-size reels grouped together. Care needs to be taken to ensure that the reel flanges are perfectly aligned with those of the row on either side (so the flanges do not overlap and damage the cable) and that the cable is blocked to prevent both fore-and-aft and side-to-side movement and shifting.



**CAUTION: REEL FLANGES CAN DAMAGE THE CABLE ON OTHER REELS**

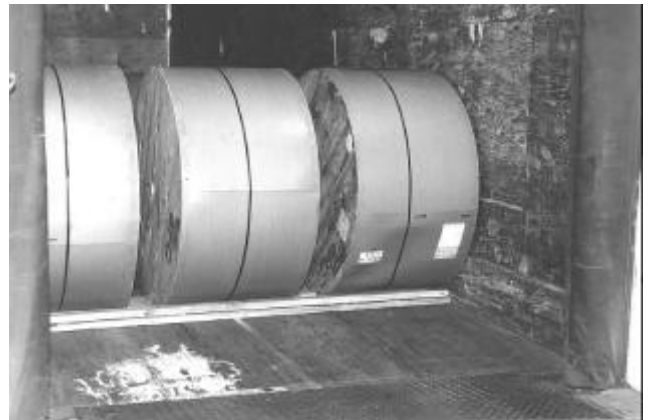
When different reel sizes are encountered, a sheet of plywood should be placed on edge to isolate rows of reels with different widths from each other.



A double stack of 2x4 boards, extending the width of the trailer, should be used to keep the reels from shifting to the rear. The reel flanges should be chocked (wedged) tightly to the front of the trailer using chocks (wedges) nailed to the trailer floor with 16d double-headed nails. Also, 2x4 chocks should be cut and nailed next to the reel flanges to keep the reels from shifting from side to side.



Reels with a flange diameter of 44 inches or less are shipped with 4 reels in a row. The reels are blocked to the sides from the center of the trailer.



Reels with a flange diameter of 48 inches or greater are shipped with three reels in a row. The outside reels touch the trailer walls and the middle reel is centered. All flanges are blocked to avoid side to side shifting.

## To The Construction Site

With the reel wrapping in place, reels of cable can be rolled on their flanges without damaging the cable. Reels should be rolled at walking speed and should not be left unattended as they are rolling. Reels should not be allowed to bump into each other or any other objects which may cause cable damage. A reel of cable should not be rolled down any significant grade which could result in loss of control of the reel. Never step in front of a reel rolling down a ramp as serious injury or death may result.

## Reel Trailer Loading and Transport

To transport the cable to the actual construction site, it is necessary to load the reel or reels of cable onto a reel payout trailer. The reels should be loaded and secured according to the instructions and recommendations of the trailer manufacturer. Once the reels have been loaded, the protective reel wrapping may be removed and discarded or reused for the protection of partial lengths if desired.

Nevertheless, the cable outer (top) end must stay securely fastened to the inside reel flange to prevent the cable from loosening on the reel as it is being transported.

