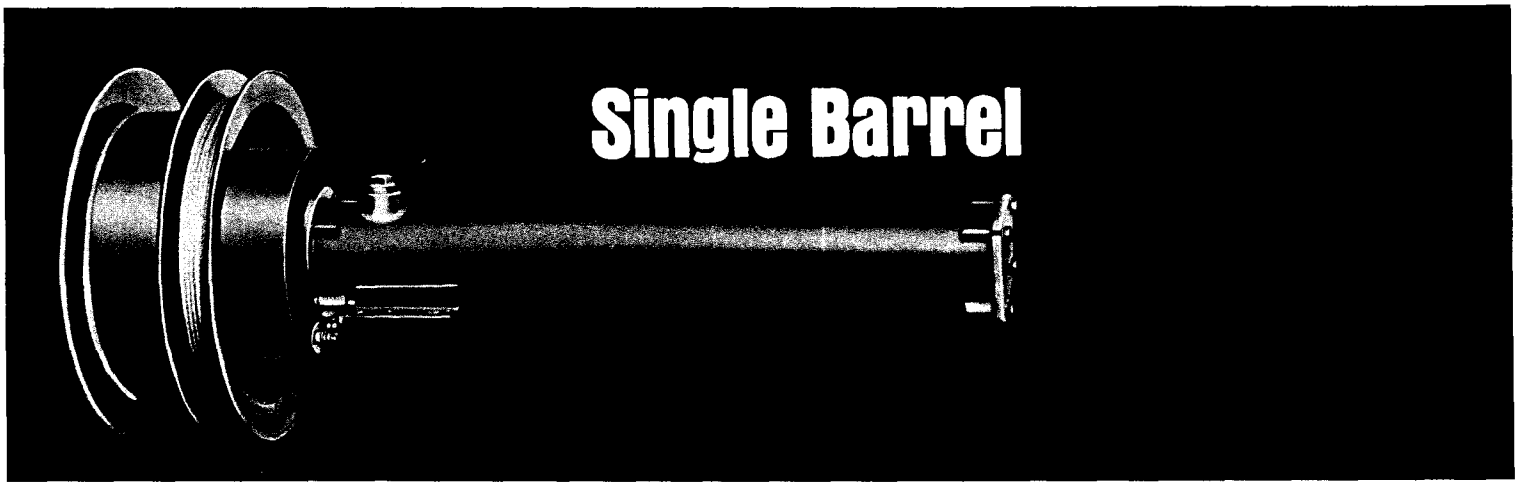
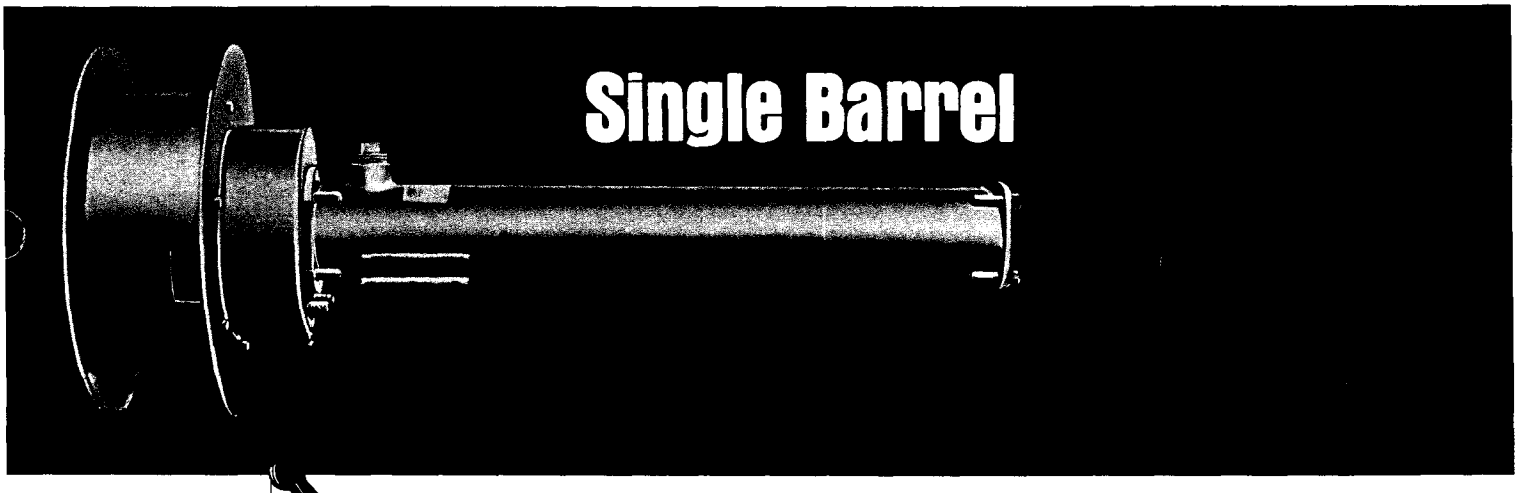
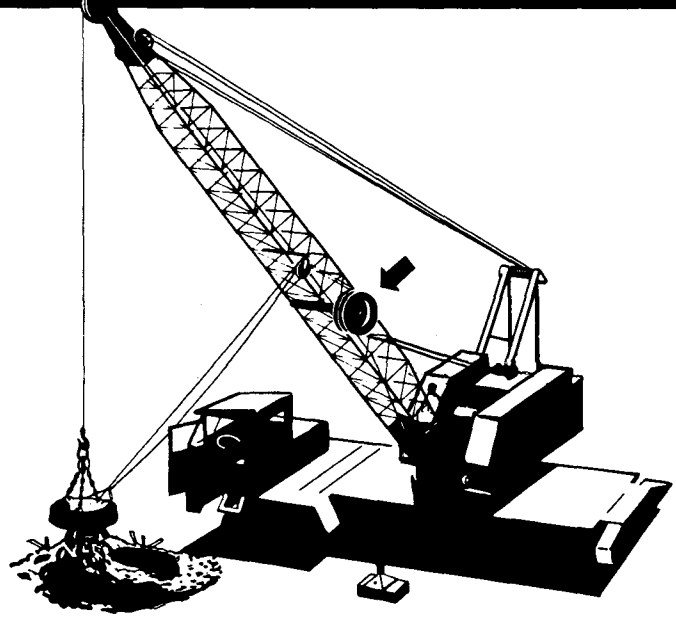
RUDOMATIC®

Operation & Maintenance Manual







IMPORTANT

This manual will service two basic types of Rudomatic Combination and Standard Magnet Reels:

1. **Combination and Standard Magnet Reels designed for magnets that use high volt-low amp DC power.**
2. **Combination and Standard Magnet Reels (Shrader) designed for magnets that use low volt-high amp DC power.**

RUDOMATIC® inc.
2131 E. 25th Street, Los Angeles, California 90058

RUDOMATIC®

Operation & Maintenance Manual

Single Barrel Combination Magnet Reel and Tagline (CMR) & Single Barrel Standard Magnet Reel (SMR)

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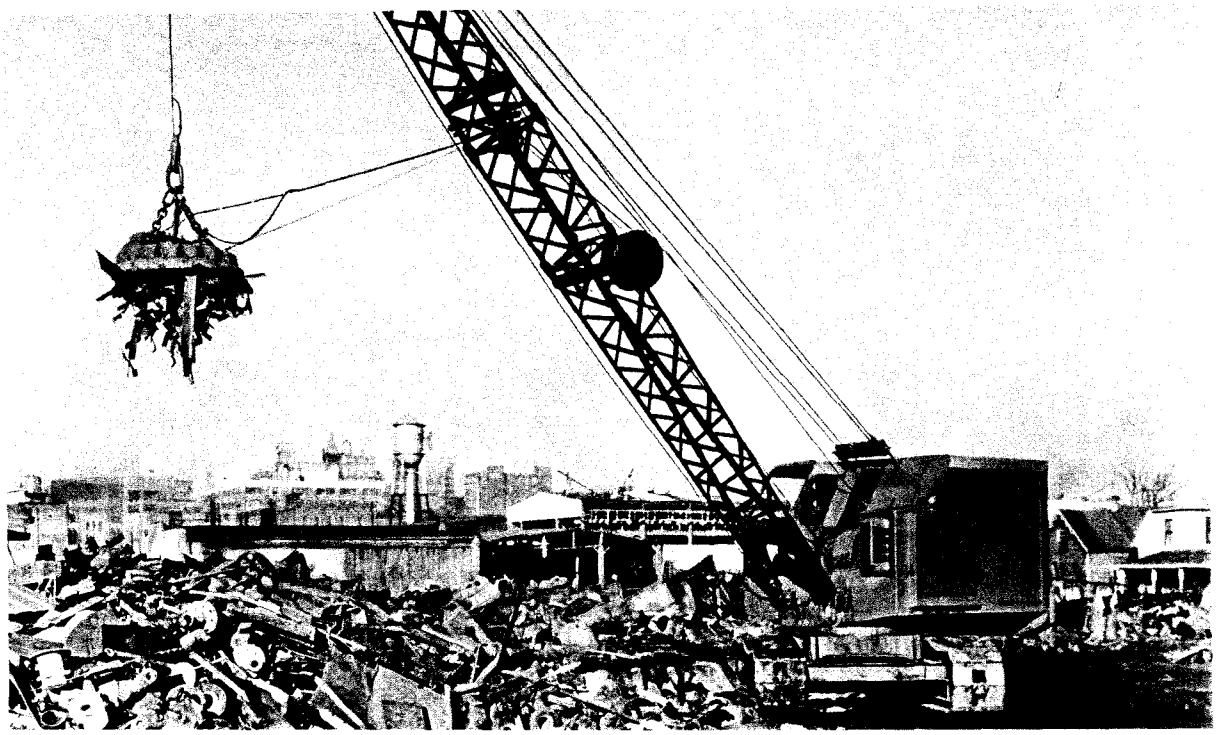

Figure A. *Rudomatic® Single Barrel Combination Magnet Reel and Tagline mounted on boom, operating in scrap yard.*

GENERAL DESCRIPTION

Rudomatic® Single Barrel Combination Magnet Reel and Tagline (CMR)

The complete unit—magnet reel, tagline, and fairlead assembly—mounts on a crane boom and consists of: tagline reel with steel tagline cable; electric cable drum reel; collector ring assembly containing brushes and insulated wire assembly; spring-loaded cylinder; fairlead pipe and two sheave-type guides—one for steel tagline cable and one for electric cable.

The CMR operates on a coil spring principle. Because both tagline reel and cable drum revolve together, the unit holds protective margin of slack originally set on electric cable while maintaining continuous, positive tension to steady the magnet and its load.

Rudomatic® Single Barrel Standard Magnet Reel (SMR)

The Standard Magnet Reel is identical to the Combination Magnet Reel and Tagline, except that it has no tagline. It mounts on a crane boom or fixed overhead crane and consists of: electric cable drum reel; collector ring assembly containing brushes and insulated wire assembly; spring-loaded cylinder; fairlead pipe and sheave-type fairlead guide.

The SMR operates on a coil spring system and revolves automatically to pay out and take in electric cable as required during operations.

The Rudomatic® Single Barrel Combination Magnet Reel and Tagline (CMR) and Rudomatic® Single Barrel Standard Magnet Reel (SMR) models are assembled with either high volt-low amp electrical components for conventional magnets, or low volt-high amp components (Shrader type) for magnets that use low volt-high amp DC power. Units are designed to operate with centrally generated DC power usually located within or near crane housing.

ASSEMBLY

All Rudomatic® Magnet Reels are completely assembled at the factory and shipped ready for mounting.

SAFETY PRECAUTIONS

Where applicable, safety precautions are included in paragraphs containing instructions on installation and disassembly procedures. Safety and maintenance data under normal operational conditions is contained in a separate section on page 9.

LUBRICATION

Use S.A.E. 90 heavy oil. A large decal, plainly visible on housing of every Rudomatic® Magnet Reel, provides precise data on amount of oil required for each model. To lubricate (Fig. B), remove oil plug on housing near cable and ½-inch black pipe plug on end plate. Add oil per decal guide until oil level lines up with plug hole on end plate. Do not fill past plug hole. Replace plugs.

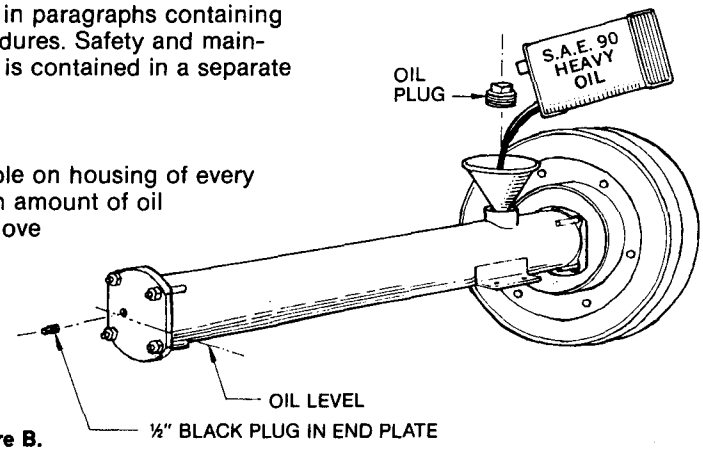

Figure B.

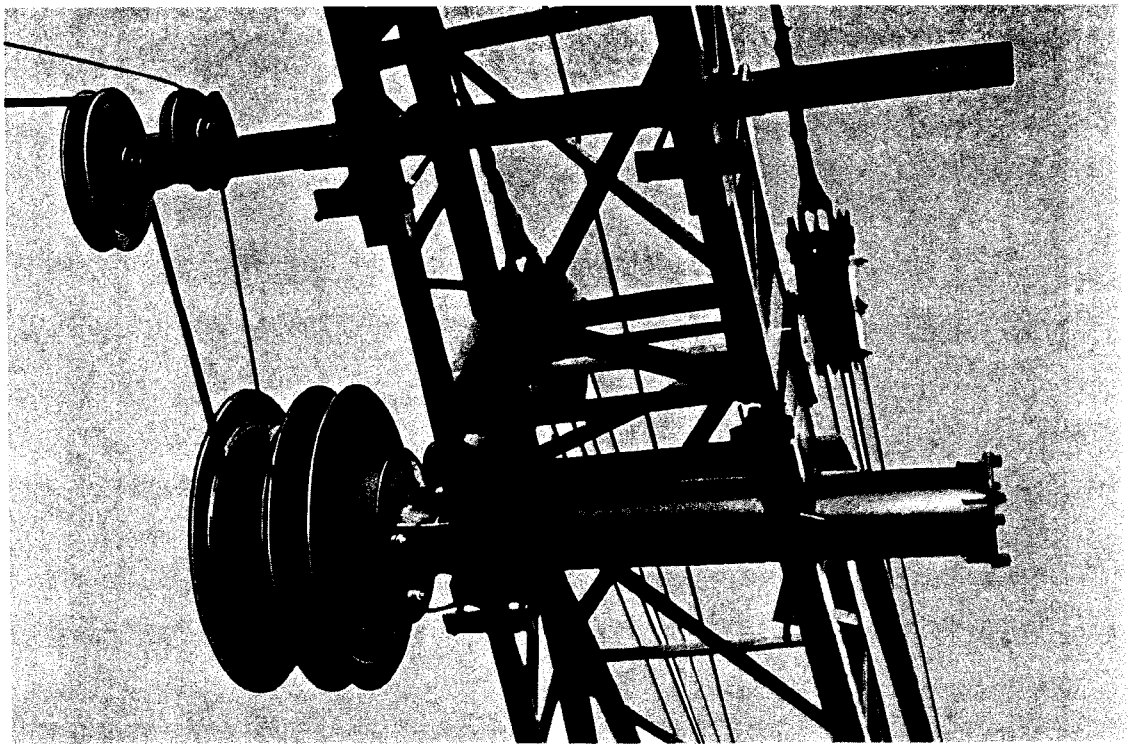

Figure C. *Close-up view of Rudomatic® Single Barrel Combination Magnet Reel & Tagline with fairlead assembly mounted on boom.*

Rudomatic® Single Barrel Combination Magnet Reel & Tagline (CMR)

BASIC FUNCTION. The Rudomatic® Combination Magnet Reel and Tagline mounts on a crane boom and performs as follows:

1. Expedites the carrying of electric cable and current to the magnet during scrap-handling and recycling operations.
2. Maintains protective margin of slack at all times on electric cable.
3. Revolves automatically to pay out and take in required amount of electric cable.
4. Holds magnet and load steady regardless of boom angle while both are suspended in air.

Operation is completely automatic after installation.

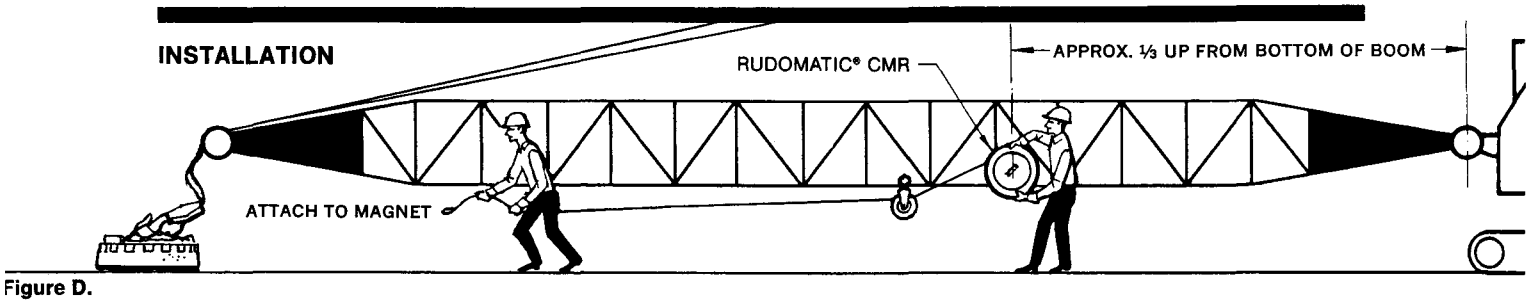

Figure D.

Mounting Single Barrel CMR On Crane Boom

The Rudomatic® Single Barrel CMR mounts with reel outside boom structure, either side. SAFETY PRECAUTION: ALWAYS MOUNT UNIT WITH REEL ON OPPOSITE SIDE OF CRANE OPERATOR CAB. USE TWO-MAN TEAM.

1. Mounting Reel and Housing Section

Lower crane and boom to ground level. Locate unit approximately ⅓ up from bottom of boom (Fig. D, above). Set in position by placing housing (oil plug side up) through framework and securing to bottom side of boom (Fig. C photo, above). Materials for securing unit to boom—U bolts with plates, nuts, and lock washers—are located on housing. Remove and use as shown in Fig. S, Items 38 & 39, page 14 (Shrader type see page 18). For exact mounting dimensions, see Fig. W, page 21.

2. Mounting Fairlead Assembly

Complete fairlead assembly component mounts approximately two feet from CMR unit at next convenient position on upper boom side. Fairlead pipe mounts parallel to CMR housing with bolt holes on same side as CMR reel. (Fig. C photo, above). Use materials for securing fair-

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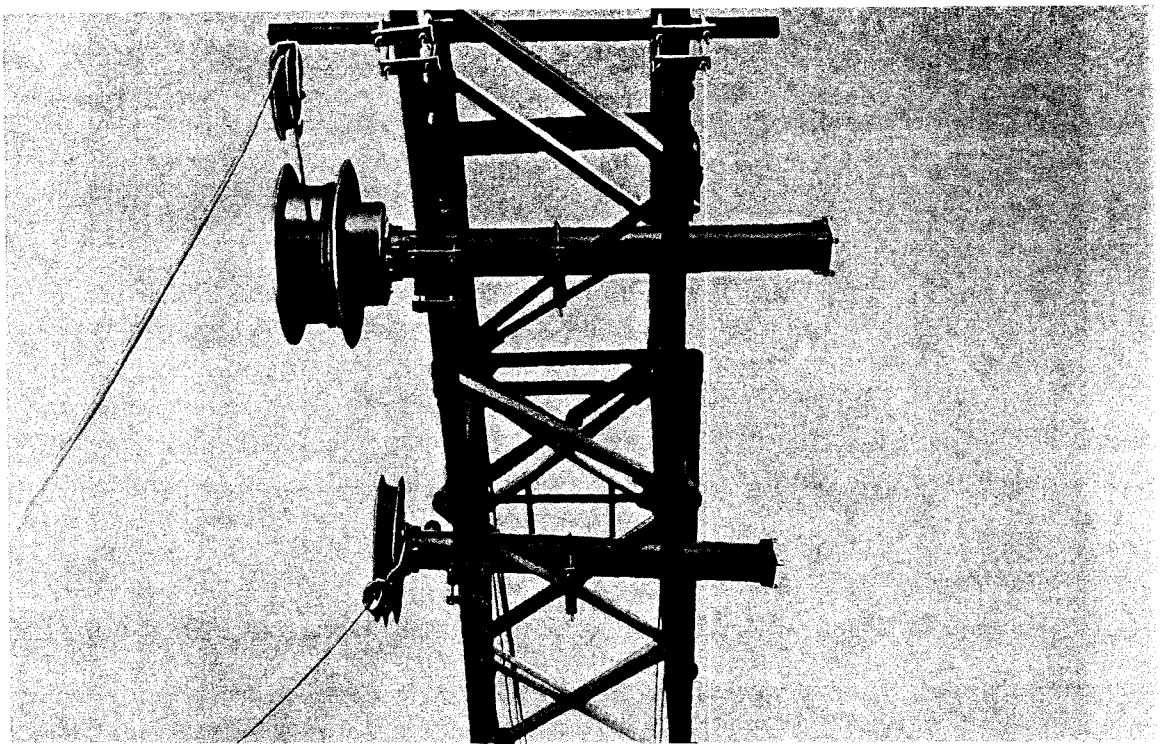


Figure E.
Rudomatic® Single Barrel Standard Magnet Reel functioning with separately mounted Rudomatic® Single Barrel Tagline.

Rudomatic® Single Barrel Standard Magnet Reel (SMR)

(ELECTRIC CABLE DRUM ONLY)

BASIC FUNCTION. The Rudomatic® Standard Magnet Reel mounts on a crane boom or fixed overhead crane and performs as follows:

1. Expedites the carrying of electric cable and current to the magnet during scrap-handling and recycling operations.
2. Revolves automatically to pay out and take in required amount of electric cable.
3. Operates where no tagline assistance is required. This occurs in fixed overhead crane operations where magnet moves vertically only and does not swing in an arc.

IMPORTANT: On crane booms, Standard Magnet Reel operates in conjunction with separately mounted tagline (Fig. E, above) that provides tension to protect electric cable and hold magnet and load steady regardless of boom angle. Electric cable remains taut but without strain at all times.

Operation is completely automatic after installation.

INSTALLATION

A. Mounting Single Barrel Standard Magnet Reel On Crane Boom

The Rudomatic® Single Barrel Standard Magnet Reel mounts with reel outside boom structure, either side, and must function in conjunction with a separately mounted tagline unit. (For tagline mounting data consult operation manual for single barrel tagline.) Standard Magnet Reel and tagline units both mount with reels on same side of boom structure.

SAFETY PRECAUTION: ALWAYS MOUNT UNITS WITH REELS ON OPPOSITE SIDE OF CRANE OPERATOR CAB. USE TWO-MAN TEAM.

1. Mounting Reel and Housing Section

Lower crane boom to ground level. With tagline unit in position ⅓ up from bottom of boom, locate Standard Magnet Reel approximately four feet in front of tagline on upper boom side (Fig. I). Magnet Reel is set in position by placing housing (oil plug side up) through framework and securing to bottom side of boom (Fig. E, above). Materials for securing unit to boom — U bolts with plates, nuts, and lock washers—are located on housing. Remove and use as shown in Fig. S, Items 38 & 39, page 14 (Shrader type see page 18). Exact mounting dimensions shown in Fig. Y, page 21.

continued on page 6 bottom

Mounting Single Barrel CMR On Crane Boom

continued from page 4

lead assembly to boom—U bolts with plates and nuts, sheaves for electric cable and tagline wire—as shown in Fig. S, Items 40 & 48, page 13. Low volt-high amp (Shrader type) units see Fig. U, Items 40 & 48, page 17. IMPORTANT: CAREFULLY LINE UP EACH SHEAVE WITH CENTER POINT OF MATCHING DRUM OR REEL AND END POINT OF CRANE BOOM. For exact mounting dimensions, see Fig. X, page 21.

3. Securing CMR Tagline & Electric Cable To Magnet

IMPORTANT: ALWAYS CONNECT TAGLINE CABLE TO MAGNET **BEFORE** CONNECTING ELECTRIC CABLE TO MAGNET.

a. Tagline Cable

With cable hooked in original position on reel, rotate reel counterclockwise (Fig. F) three complete revolutions from neutral position (no tension). Using two-man team, one man holds reel in stationary position while second man unhooks cable and passes end over sheave guide. First man releases reel as second man walks out enough length to reach magnet (Fig. D, page 4). First man again holds reel in stationary position while second man secures end to magnet. Tagline is now functional and ready for pre-operation testing (see page 8).

b. Electric Cable

NOTE: To determine length of electric cable see Specifications Chart, page 22, top. Use tagline cable pullout figures as guide. Allow for margin of slack.

Proceed only after tagline has been secured and tested. Use two-man team. Remove drum reel cover. Pass electric cable terminals through slot on drum reel and under clamp that secures cable to drum interior (Fig. G); connect terminals to brass studs on collector ring plate. Drum reel is then held in stationary position while cable is wound around it, passed over sheave guide, and connected to magnet terminal box (Fig. H). IMPORTANT: ALLOW MARGIN OF SLACK. CABLE SHOULD NOT BE TAUT. ALL TENSION SHOULD BE CARRIED BY STEEL TAGLINE.

If **excess** slack is apparent on electric cable due to insufficient length to complete another wrap around drum, pull excess inside drum through slot on reel and secure to electric cable clamp. BUT ALWAYS

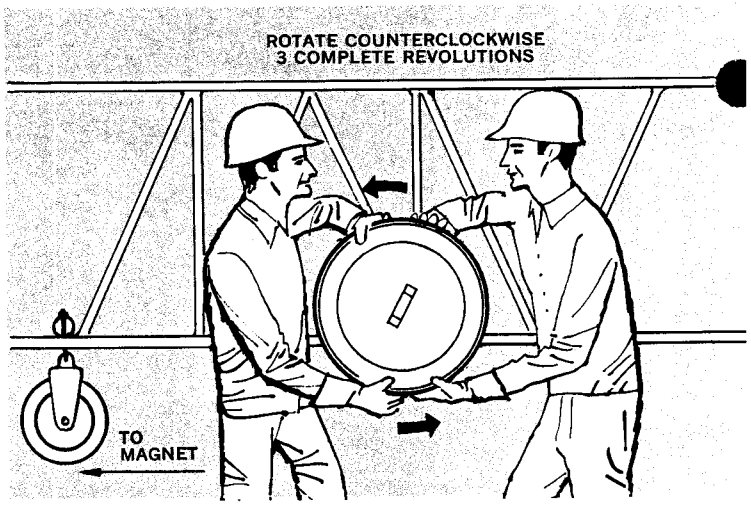


Figure F.

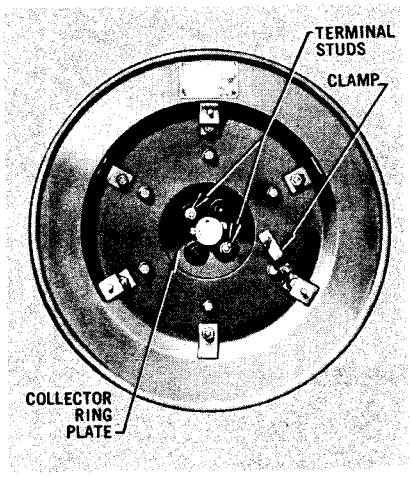


Figure G.

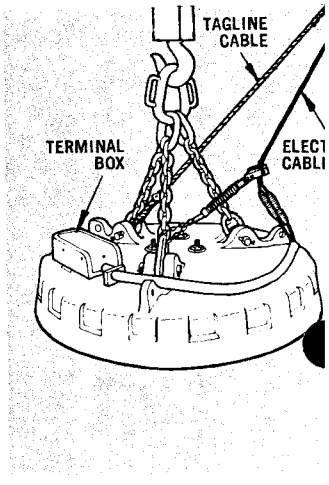


Figure H.

ALLOW SUFFICIENT MARGIN OF SLACK ON ELECTRIC CABLE SO THAT IT DOES NOT BECOME TAUT DURING OPERATIONS. Replace drum cover. NOTE: Wires from generator connect to exterior terminals visible on underside of collector ring housing (see Fig. C photo, page 4). Electric cable is now ready for pre-operation testing with previously tested tagline in position on crane and secured to magnet.

continued on page 8

Mounting Single Barrel SMR On Crane Boom

continued from page 5

2. Mounting Fairlead Assembly

Complete fairlead assembly component mounts approximately two feet from housing unit at next convenient position on upper boom side. Fairlead pipe mounts parallel to housing with bolt holes on same side as reel (Fig. E, page 5). Use materials for securing fairlead assembly to boom—U bolts with plates and nuts, sheave for electric cable—as shown in Fig. S, Items 40 & 48, page 13. Low volt-high amp (Shrader type) units see Fig. U, Items 40 & 48, page 17. IMPORTANT: CAREFULLY LINE UP SHEAVE WITH CENTER POINT OF CABLE DRUM AND END POINT OF CRANE BOOM. Exact mounting dimensions are shown in Fig. Z, page 21.

Side view of Standard Magnet Reel on crane boom with separately mounted tagline unit.

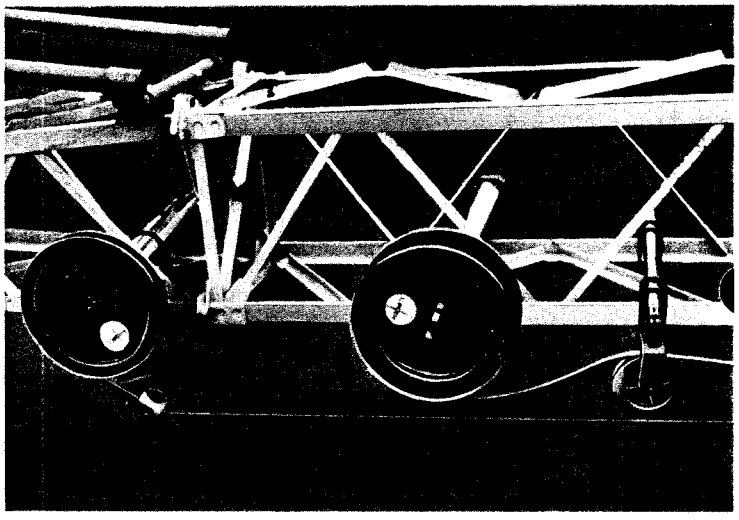


Figure I.

3. Securing Electric Cable To Magnet

NOTE: To determine length of electric cable, see Specifications Chart, page 22. Use tagline cable pullout figures as guide.

IMPORTANT: STEEL TAGLINE CABLE FROM SEPARATELY MOUNTED TAGLINE UNIT MUST FIRST BE SECURED TO MAGNET BEFORE ELECTRIC CABLE IS HOOKED UP.

Use two-man team. Remove drum reel cover. Pass electric cable terminals through slot on drum reel and under clamp that secures cable to drum interior (Fig. G); connect terminals to brass studs on collector ring plate. Drum reel is held in stationary position while cable is wound around it. With cable ends hooked in secure position on drum reel, rotate reel counterclockwise three complete revolutions from neutral (no tension). Reel is held stationary once more while cable is unhooked and passed over sheave guide. Reel is then released in order to pull out enough cable to reach magnet. Cable is secured to magnet terminal box (Fig. H) while reel is again held in stationary position. Cable should be taut, but without tension (tension is carried by separately mounted tagline). If slack remains on cable due to insufficient length to complete another wrap around drum, pull extra slack inside drum through slot and secure to electric cable clamp on drum interior. Replace cable drum cover. Magnet Reel is now functional and ready for pre-operation testing with separately mounted tagline unit.

NOTE: Wires from generator connect to exterior terminals visible on under side of collector ring housing.

B. Mounting Single Barrel Standard Magnet Reel On Overhead Crane

In this type of mount, overhead crane or trolley frame is fixed in horizontal position overhead. No tagline is required. The magnet moves vertically only and does not swing in an arc. SAFETY PRECAUTION: USE TWO-MAN TEAM, OR MORE AS NECESSARY, DEPENDING ON ACCESSIBILITY OF CRANE ON JOB SITE.

1. Mounting Reel and Housing Section

NOTE: For overhead installations that do not use fairlead assembly provided, mount reel and housing section directly over magnet on overhead structure. Instructions given below cover installations using complete unit, including fairlead sheave that guides electric cable.

Locate reel and housing section approximately two feet from fairlead assembly (fairlead mounts directly above magnet). Select position that permits electric cable to travel smoothly over fairlead sheave guide and up and down with magnet. Unit is set in position by securing housing (oil plug side up) to overhead structure. Materials for securing unit — U bolts with plates, nuts, and lock washers — are located on housing. Remove and use as shown in Fig. S, Items 38 & 39, page 14 (Shrader type see page 18). Mounting dimensions are illustrated in Fig. Y, page 21.

2. Mounting Fairlead Assembly

Fairlead assembly locates directly over magnet. Fairlead pipe is secured to overhead crane parallel to barrel housing of magnet reel with bolt holes on same side as reel. IMPORTANT: POSITION FAIRLEAD PIPE AND SHEAVE SO THAT SHEAVE LINES UP WITH MID-POINT OF DRUM REEL WIDTH. Use materials for securing fairlead assembly to crane — U bolts with plates and nuts, magnet reel fairlead sheave and housing, J bolt and nuts —as shown in Fig. S, Items 40 & 48, page 13. Low volt-high amp (Shrader type) units see Fig. U, Items 40 & 48, page 17. For exact mounting dimensions, see Fig. Z, page 21.

NOTE: Standard Magnet Reel does not contain tagline fairlead sheave assembly.

3. Securing Electric Cable To Magnet

Raise magnet to highest position. Remove magnet reel drum cover. Pass electric cable (not provided) through slot on side of drum reel and under electric cable clamp that secures cable to drum interior (Fig. G, page 6); connect terminals to brass studs on collector ring plate. Hold drum reel in stationary position while cable is wound around it. With cable end hooked in secure position on drum reel, rotate reel counterclockwise three complete revolutions from neutral position (no tension). One man then holds reel in stationary position while second man unhooks cable, passes end over sheave guide; reel is released and enough cable unwound to secure to magnet terminal box (Fig. H, page 6). Electric cable should be without tension, but not slack enough to foul magnet hoist lines during operations. If excessive slack remains on cable due to insufficient length to complete another wrap around drum, pull extra slack inside drum reel through slot and secure to electric cable clamp on drum interior. Replace cable drum cover.

NOTE: Wires from generator connect to exterior terminals visible on under side of collector ring housing. Magnet Reel is now functional.

Rudomatic® Standard Magnet Reel mounted on overhead crane automatically pays out and takes up electric cable as required.

Figure J.

PRE-OPERATION TEST

A. Combination Magnet Reel & Tagline (CMR)

IMPORTANT: ALWAYS TEST TAGLINE FIRST—**BEFORE** ELECTRIC CABLE IS CONNECTED TO MAGNET.

1. Tagline Pre-Operation Test

Position crane boom at high enough angle so that magnet can be raised a minimum of 15 feet. Raise magnet to maximum height and drop to ground. Raise magnet again to not less than 15 feet and swing through 45° arc. Return magnet to original position. During test observe crane hoisting lines to make certain they do not twist enough to cross over and foul operations. If tagline and magnet function smoothly without hindrance, tagline is operational and ready for testing with electric cable connected to magnet (see paragraph 3 below). Should twisting occur additional tension will be required.

2. To Add Tension

Lower boom to ground level. Use two-man team. Turn cable reel counterclockwise to release sufficient slack tagline cable to permit one additional turn around reel (Fig. K). One man holds reel in stationary position while second man wraps cable (Fig. L). After completion of turn, release reel. Repeat pre-operation test.

3. Electric Cable & Tagline Joint Pre-Operation Test

Begin test with tagline operational, electric cable connected to magnet per instructions in Installation Section (paragraph 3b, page 6), and current ready to use. Position crane boom over dirt surface at high enough angle so that magnet can be raised a minimum of 15 feet. Have a scrap load nearby. Raise magnet to maximum height and drop onto scrap pile. Use current to take on load. Raise to height of not less than 15 feet while swinging magnet through 45° arc. Drop load and return magnet to original position. During test observe operation to make certain electric cable maintains margin of slack and does not foul tagline wire rope or crane hoisting lines. If electric cable and wire rope do not function smoothly with magnet, lower boom to ground level and make necessary adjustments in cable slack or wire rope tension. Repeat pre-operation test.

B. Standard Magnet Reel Pre-Operation Test

1. Mounted On Crane

Follow procedure outlined above for CMR, but note that electric cable will not have slack. Cable should remain taut but without tension or strain. Separately mounted tagline should carry required tension to protect electric cable. If electric cable and tagline do not funtion together smoothly, lower boom to ground level and make necessary adjustments in cable slack or tagline tension. Repeat pre-operation test.

2. Overhead Crane

Check electric cable terminal connections. No further pre-testing is required.

OPERATION INSTRUCTIONS

All CMR and Standard Magnet Reels function automatically after installation and pre-testing. No further operational procedure is required.

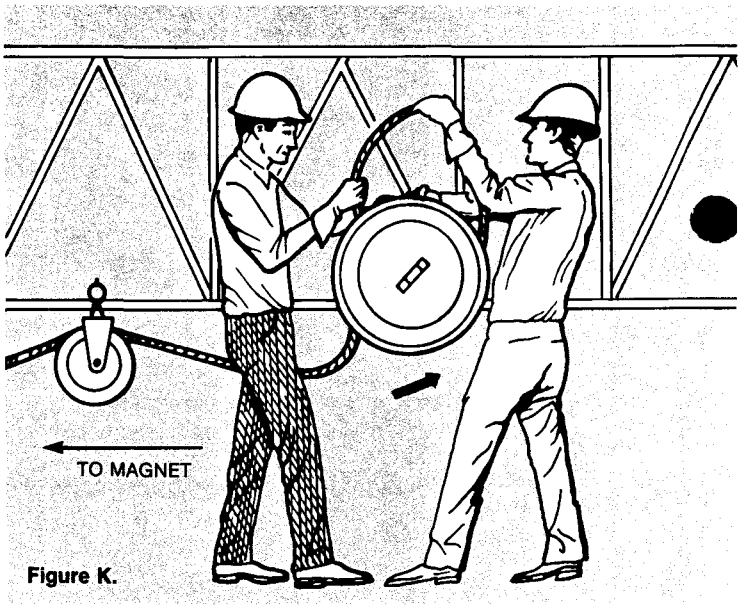


Figure K.

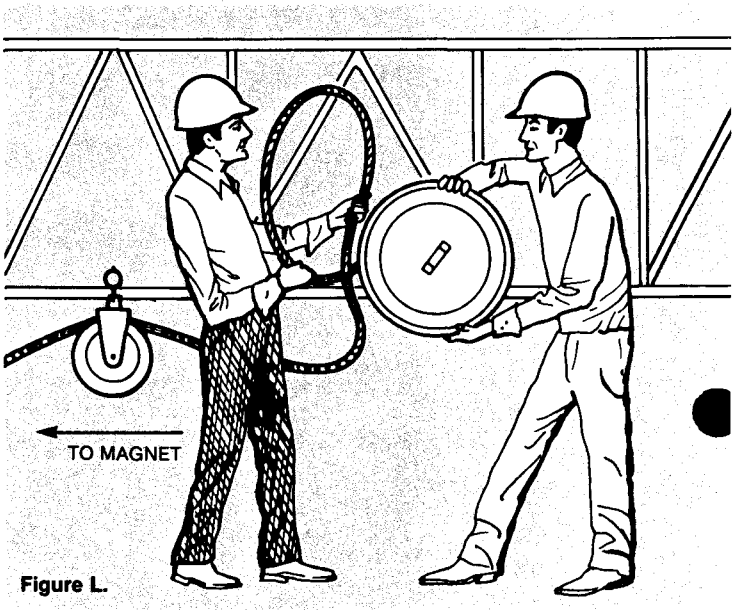


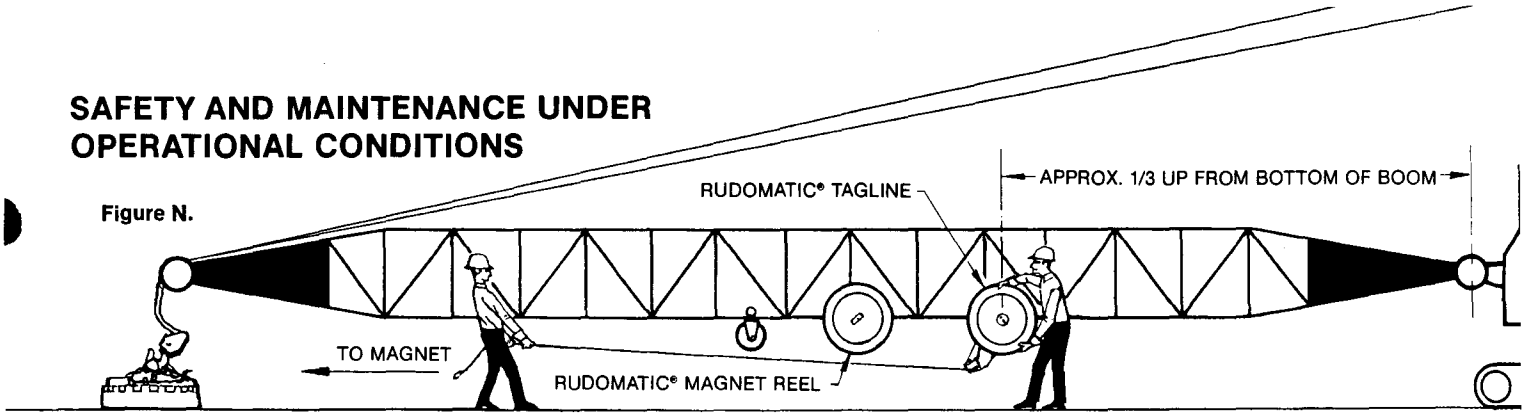
Figure L.

Electric cable on Rudomatic® Standard Magnet Reel provides current for magnet operating from overhead crane.

Figure M.

SAFETY AND MAINTENANCE UNDER OPERATIONAL CONDITIONS

Figure N.



A. SAFETY

1. To Disengage CMR Electric Cable from Magnet

IMPORTANT: TAGLINE SHOULD REMAIN HOOKED UP TO MAGNET WHILE DISENGAGING ELECTRIC CABLE. USE TWO-MAN TEAM. Lower boom to ground level and position magnet close to CMR unit. CAUTION: MAKE CERTAIN POWER IS OFF BEFORE PROCEEDING. Disconnect cable terminals from magnet terminal box and wind cable around drum reel. Tagline tension will hold drum reel in stationary position. Secure terminal ends on reel so that cable does not unwind.

2. To Disengage CMR Tagline from Magnet

With boom at ground level, one man holds reel in stationary position while second man, wearing protective gloves, unhooks cable end from magnet and grasps firmly with BOTH hands. On agreed signal, second man releases reel and first man slowly walks in tagline. Second man stands by at reel to guide tagline and see that electric cable does not unwind.

IMPORTANT: If tension remaining on spring inside housing is more than six revolutions of cable reel—OR IF IN DOUBT ABOUT HOW MUCH TENSION REMAINS ON SPRING—USE THREE-MAN TEAM. One man stands by at reel while two men wearing gloves walk in tagline.

3. To Disengage Standard Magnet Reel Electric Cable from Magnet

IMPORTANT: ON CRANE BOOMS, ALWAYS DISENGAGE ELECTRIC CABLE FIRST—BEFORE DISENGAGING TAGLINE CABLE FROM SEPARATELY MOUNTED TAGLINE UNIT. USE TWO-MAN TEAM. Lower boom to ground level. CAUTION: MAKE CERTAIN POWER IS OFF BEFORE PROCEEDING. One man holds reel in stationary position while second man disconnects cable terminals from magnet terminal box and grasps cable firmly with both hands. On agreed signal, first man releases magnet reel and second man walks in electric cable. First man stands by to guide cable around reel. Secure terminal ends on reel so that cable does not unwind.

4. To Disengage Separately Mounted Single Barrel Tagline from Magnet

IMPORTANT: MAKE CERTAIN ELECTRIC CABLE HAS BEEN DISENGAGED FROM MAGNET REEL BEFORE PROCEEDING (See paragraph 3, above).

USE TWO-MAN TEAM. Lower bucket to ground level. Place dog ratchet (or wooden block)* against gusset on interior side of cable reel (Fig. O). Wearing protective gloves, one man unhooks cable end and grasps cable firmly with both hands. Second man disengages dog ratchet (or removes wooden block). First man then slowly walks in cable as it winds around reel (Fig. N).

IMPORTANT: If tension remaining on spring inside housing is more than six revolutions of cable reel—OR IF IN DOUBT ABOUT HOW MUCH TENSION REMAINS ON SPRING—USE THREE-MAN TEAM. One man disengages dog ratchet (or removes wooden block), and then two men wearing gloves walk in cable.

B. MAINTENANCE

1. Lubrication (See Fig. B, page 3)

Lubrication should be checked at the start of each new job. Use S.A.E. 90 heavy oil. Remove oil plug near reel on barrel housing. Add oil as necessary per decal guide until oil level lines up with plug hole on end plate. Do not fill past plug hole. Replace plug.

2. Inspection for Wear or Damage

Inspect unit (CMR or SMR) and fairlead assembly for routine wear. Replace sheaves if uneven wear in grooves is apparent. Inspect tagline cable for routine wear. If signs of frayed ends or wear are visible, replace cable.

3. Preventive Maintenance to Avert Coil Spring Overwinding

Coil spring overwinding can only occur in magnet reels and taglines that do not contain bearings with shear pins. To prevent coil spring overwinding in these earlier models, cable reel should not exceed maximum number of turns recommended for a specific model. See complete Specification Chart, page 22, for correct number of allowable turns to prevent coil spring overwinding.

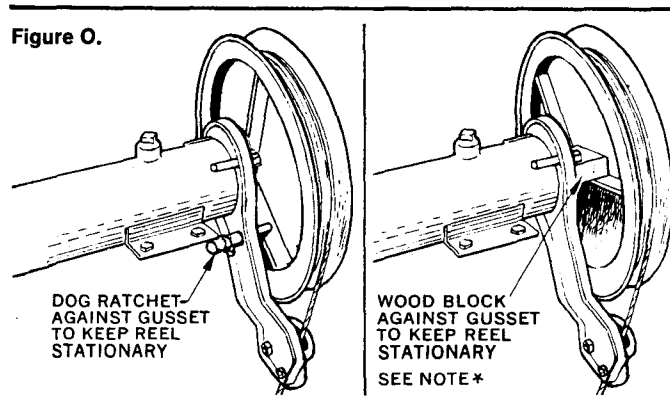
All current magnet reels and taglines are manufactured with bearings containing shear pins. They are designed so that the shear pin breaks and releases spring tension if cable reel exceeds maximum recommended number of turns. (See Shear Pin Breaking Point, page 22.)

4. Storage Between Use

For brief periods of inactivity it is not necessary to drain oil from housing. CAUTION: ALWAYS STORE UNIT WITH HOUSING IN HORIZONTAL POSITION TO PREVENT OIL FROM LEAKING THROUGH OIL SEAL.

For long periods of inactivity, lubrication oil should be drained from housing. Loosen four nuts on end plate. Tilt unit to remove final oil residue. Tighten four nuts. Store unit in horizontal position.

Figure O.



***NOTE:** *Taglines manufactured prior to November, 1979 require use of wooden block to maintain reel in stationary position. Taglines and fairlead arm replacements manufactured after November, 1979 are equipped with dog ratchets.*

PREPARATION FOR DISASSEMBLY TO REPLACE WORN PARTS

SAFETY PRECAUTION: ALL TENSION MUST BE RELEASED FROM COIL SPRING INSIDE HOUSING BEFORE STANDARD MAGNET REEL OR COMBINATION MAGNET REEL AND TAGLINE CAN BE DISASSEMBLED. USE TWO-MAN TEAM.

Alternate procedures for releasing spring tension in housing are given below. Use method that best suits type of mount and condition of unit.

A. COMBINATION MAGNET REEL & TAGLINE (CMR)

1. Release Of Spring Tension With Tagline Cable Remaining On Reel. Refer to Fig. P.

a. IMPORTANT: REMOVE ELECTRIC CABLE FROM DRUM REEL BEFORE ATTEMPTING TO RELEASE SPRING TENSION. Proceed as follows: Lower boom to ground level and position magnet close to CMR unit. CAUTION: MAKE CERTAIN POWER IS OFF BEFORE PROCEEDING. Disconnect electric cable terminals from magnet terminal box. Remove electric cable drum cover (Item 2). Disconnect electric cable terminals from brass studs on collector ring plate (Item 9) and release cable from clamp (Item 3). Unwind electric cable from drum and pull terminals out through slot on drum reel.

b. With boom at ground level, tagline cable remains hooked to magnet. This is reverse of procedure used to add tension. One man holds reel in place while second man removes one loop of cable from reel. First man then turns reel **clockwise** one turn to take up cable slack, thus reducing tension on spring by one turn. Repeat procedure until all tension on spring is released. Unit is now ready for disassembly.

2. Release Of Spring Tension When Reel Of CMR Is "Frozen" Immobile. Refer to Fig. P.

NOTE: This situation occurs only in CMR units that do not contain shear pin bearings (those manufactured prior to November, 1981). IMPORTANT: To prevent reoccurrence, it is necessary to order a new Bearing with Shear Pin (Item 15, Part No. 555) with replacement for "frozen" spring (Item 30).

SAFETY PRECAUTION: DO NOT ATTEMPT TO UNHOOK "FROZEN" OVERWOUND COIL SPRING FROM PROPELLER (ITEM 29) BY INSERTING CROWBAR, HAMMER, SCREWDRIVER, OR SIMILAR INSTRUMENT. SUDDEN UNWINDING OF "FROZEN" COIL SPRING CAN CAUSE BODILY HARM. CAREFULLY FOLLOW STEP BY STEP PROCEDURE OUTLINED BELOW TO RELEASE SPRING TENSION.

a. Lower boom to ground level and position magnet close to CMR unit.

b. Remove electric cable from drum reel. Follow procedure outlined in paragraph 1 (a) above.

c. Unhook tagline cable from magnet and disengage from reel.
SAFETY PRECAUTION: ALWAYS WORK FROM SIDE OF HOUSING UNTIL ALL TENSION IS RELEASED AND COIL SPRING IS COMPLETELY UNWOUND. DO NOT STAND IN FRONT OF END PLATE OR BEHIND CABLE REEL.

d. Remove collector ring housing cover (Item 12). Remove four ¼-inch hex nuts from brush set (Item 10). Remove brush set from collector ring housing (Item 13).

e. Using open-end wrench, loosen but do not remove four nuts (Item 14) on front end (reel side) of coil spring housing (Item 31—left). If cable does not unwind, or if unwinding is not smooth and reel tends to stick, loosen but do not remove four nuts (Item 14) on small end plate of coil spring housing (Item 31—right). If reel still does not unwind, it will be necessary to burn through coil spring in housing to release tension.

f. To burn spring, remove oil plug (Item 32) near reel on housing. Coil spring can now be seen inside plug hole. Burn through coil with acetylene torch until spring releases tension and unwinds. When spring is completely unwound, unit is ready for disassembly.

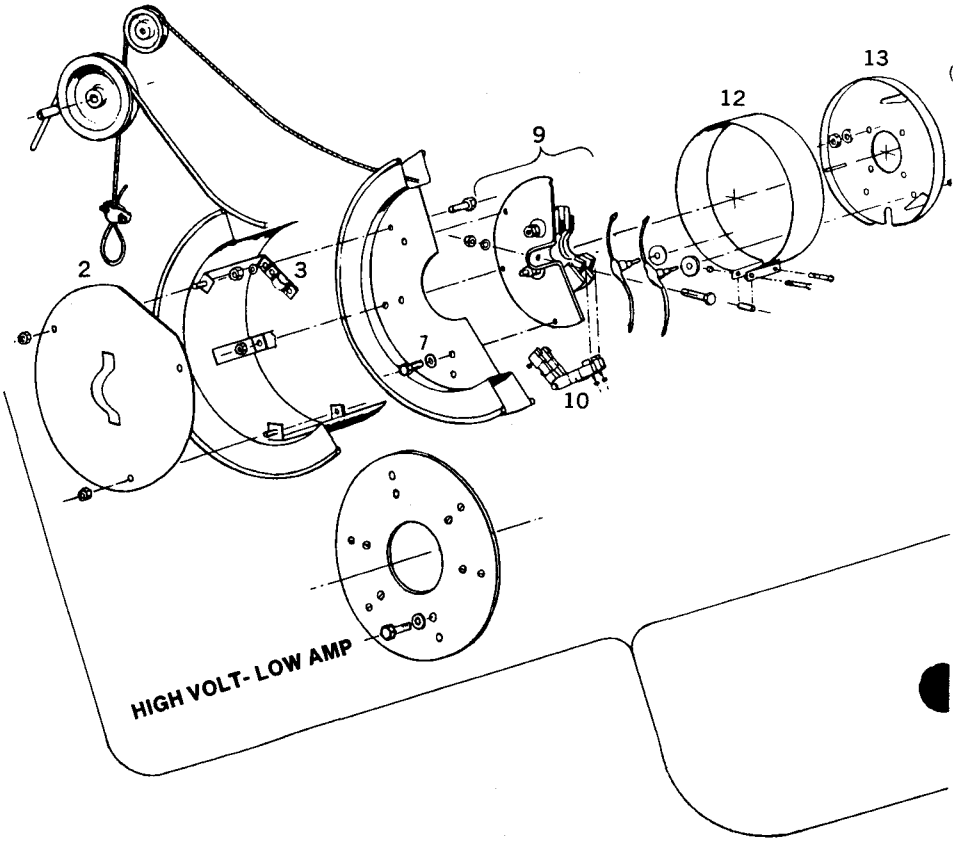


Figure P.

ENGINEERING DRAWING – D1606
SINGLE BARREL MAGNET REEL
HIGH VOLT – LOW AMPS
MODELS 624 – 630 – 636 – 648 – 666

B. STANDARD MAGNET REEL (SMR)

1. Release Of Spring Tension With Unit Remaining On Boom. Refer to Fig. P.

a. Lower boom to ground level and position magnet close to reel. SAFETY PRECAUTION: DO NOT UNHOOK SEPARATELY MOUNTED TAGLINE CABLE FROM MAGNET.

b. Electric cable remains connected to magnet. One man holds drum reel in place while second man removes one loop of cable from reel. First man then turns reel **clockwise** one turn to take up cable slack, thus reducing tension on spring by one turn. Repeat procedure until all tension on spring is released.

c. For greater working convenience, remove electric cable from drum reel after all spring tension is released. CAUTION: MAKE CERTAIN POWER IS OFF BEFORE PROCEEDING. Disconnect cable terminals from brass studs on collector ring plate (Item 9) and release cable from cable clamp (Item 3). Unwind cable from drum and pull terminals out through slot on drum wheel.

2. Release Of Spring Tension With Unit Remaining On Overhead Crane. Raise magnet to highest convenient position close to unit. Follow procedure outlined in paragraphs 1 (b) and (c) above.

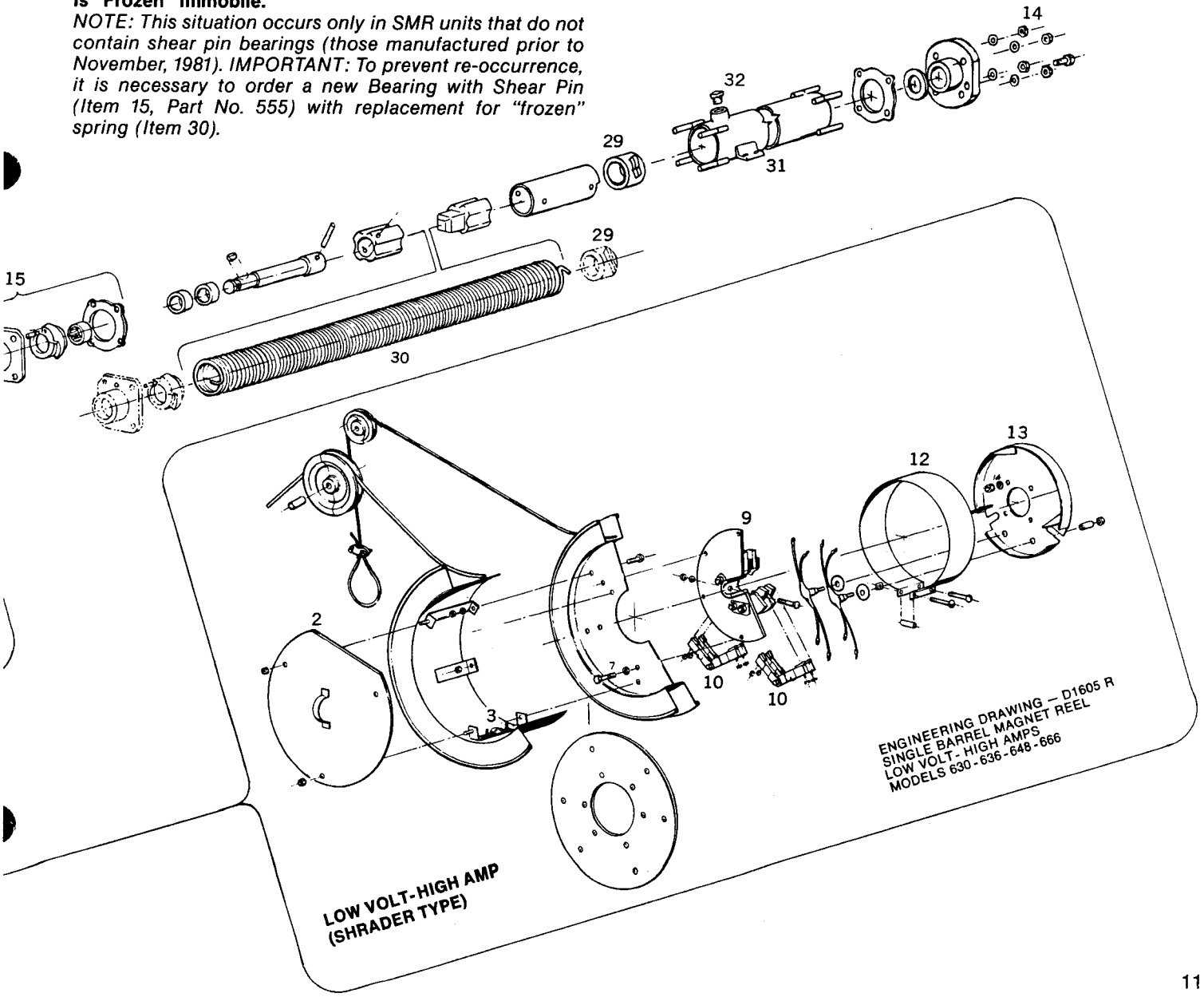
3. Release Of Spring Tension When Standard Magnet Reel Is "Frozen" Immobile.

NOTE: This situation occurs only in SMR units that do not contain shear pin bearings (those manufactured prior to November, 1981). IMPORTANT: To prevent re-occurrence, it is necessary to order a new Bearing with Shear Pin (Item 15, Part No. 555) with replacement for "frozen" spring (Item 30).

SAFETY PRECAUTION: DO NOT ATTEMPT TO UNHOOK "FROZEN" OVERWOUND COIL SPRING FROM PROPELLER (ITEM 9) BY INSERTING CROWBAR, HAMMER, SCREWDRIVER, OR SIMILAR INSTRUMENT. SUDDEN UNWINDING OF "FROZEN" COIL SPRING CAN CAUSE BODILY HARM. ALWAYS WORK FROM SIDE OF HOUSING UNTIL ALL TENSION IS RELEASED AND COIL SPRING IS COMPLETELY UNWOUND. DO NOT STAND IN FRONT OF END PLATE OR BEHIND CABLE REEL. CAREFULLY FOLLOW STEPS OUTLINED BELOW.

a. On Boom. Follow procedure outlined in Section A, paragraph 2 (page 10) for CMR, but omit Step (c) which does not apply.

b. On Overhead Crane. Raise magnet to highest position close to unit. Remove electric cable from drum reel. CAUTION: MAKE CERTAIN POWER IS OFF BEFORE PROCEEDING. Disconnect electric cable terminals from magnet terminal box. Remove electric cable drum cover (Item 2). Disconnect electric cable terminals from brass studs on collector ring plate (Item 9) and release cable from clamp (Item 3). Unwind cable from drum and pull terminals out through slot on drum wheel. Follow procedure outlined in Section A (page 10) for CMR, paragraph 2, Steps (d), (e), and (f).



DISASSEMBLY (CMR & SMR)

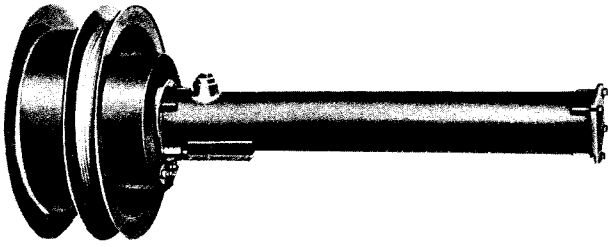


Figure Q.

COMBINATION MAGNET REEL & TAGLINE (CMR)

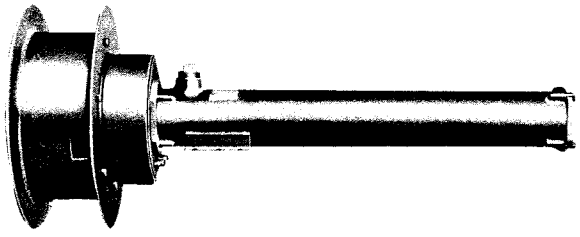


Figure R.

STANDARD MAGNET REEL (SMR)

With all tension released from coil spring (see previous section on preparation for disassembly), disassembly can begin. Entire procedure may be carried out with units secured to boom or overhead crane. If preferred, however, for easier working convenience units can be dismantled from structures prior to disassembly and removed to table or bench. Dismantling may require burning off U bolts that secure units to cranes. When re-mounted, it will be necessary to replace U bolts. SAFETY PRECAUTION: BEFORE STARTING DISASSEMBLY ON BENCH, UNITS SHOULD BE SECURELY TIED DOWN WITH C-CLAMPS OR EQUIVALENT MEANS.

A. DISASSEMBLY STEPS. Refer to Fig. S.

1. Remove electric cable drum reel cover (Item 2).
2. Remove six cap screws (Item 7) connecting tagline reel (Item 6) to collector ring assembly (Item 9).

2(A). STANDARD MAGNET REEL ONLY. Remove six cap screws (Item 7) connecting adapter plate (Item 37) to collector ring assembly (Item 9).

3. Remove collector ring housing cover (Item 12).
4. Remove ¼" hex nuts from brush set (Item 10).
5. Remove brush set (Item 10) from collector ring housing (Item 13).
6. Remove ⅝"x 2¾" cap screws (Item 9A) from collector ring assembly (Item 9).
7. Remove collector ring assembly from shaft (Item 23).
8. Remove four ⅝" hex nuts (Item 14) from collector ring housing.
9. Remove collector ring housing (Item 13).
10. Remove head bearing (Item 15).
11. Remove shaft welded to coupling (Item 21).
12. Remove four hex nuts connecting small end plate (Item 35) to tagline housing (Item 31 — right).
13. Remove end plate, thrust washers, and gaskets (Items 33, 34, & 35).
14. Remove propeller, tubing, and coupling (welded), (Item 27) through back.
15. Remove Spring (Item 30) from housing.

REASSEMBLY PROCEDURE

Reverse disassembly steps listed above.

PARTS LIST— HIGH VOLT-LOW AMP ELECTRICAL COMPONENTS

FOR RUDOMATIC® SINGLE BARREL COMBINATION AND STANDARD MAGNET REELS. ALL MODELS.
USE PART NUMBER WHEN ORDERING. DO NOT USE ITEM NUMBER.

ITEM NO.	PART NO.	WEIGHT EACH	DESCRIPTION
A	61		**COMPLETE COLLECTOR RING ASSEMBLY** (Includes all parts listed in this column)
1	157	20 lbs.	Collector Ring Plate
2	56	3 lbs.	Collector Ring (2 each required)
3	158	14 oz.	Insulating Board — 3 hole
4	159	14 oz.	Insulating Board — 4 hole
5	58	3 oz.	Fiber Bushing
6, 6A	160	7 oz.	5/8" x 2 3/4" Cap Screw w/Nut & Lock Washer
7	59	3 oz.	Short Terminal Stud & Insulation. Consists of:
8	161	2 oz.	Short Terminal Stud
9	162	1/2 oz.	3/8" Brass Nut (2 each required)
10	163	1/3 oz.	3/8" Brass Washer
11	M100	1/15 oz.	Fiber Washer (2 each required)
12	227	1/9 oz.	Mica Washer, 5/8" hole
13	112T	1/2 oz.	Mica Tube
14	60	4 oz.	Long Terminal Stud & Insulation. Consists of:
15	164	3 oz.	Long Terminal Stud
16	162	1/2 oz.	3/8" Brass Nut (2 each required)
17	163	1/3 oz.	3/8" Brass Washer
18	M100	1/15 oz.	Fiber Washer (2 each required)
19	227	1/9 oz.	Mica Washer, 5/8" hole
20	225	1/2 oz.	Mica Tube
21, 21A	165	4 oz.	Anchor Bolt Assembly (2 each required). Consists of:
22	166	2 1/2 oz.	Anchor Bolt, 3/8" x 4" Cap Screw
23	175	1/2 oz.	3/8" Steel Nut
24	485	1/3 oz.	3/8" Blk. Flat Washer (2 each required)
25	M100	1/15 oz.	Fiber Washer (3 each required)
26	227	1/9 oz.	Mica Washer, 5/8" hole
27	226	1/15 oz.	Mica Washer
28	325	1 oz.	Mica Tube

OPEN OUT FOLD

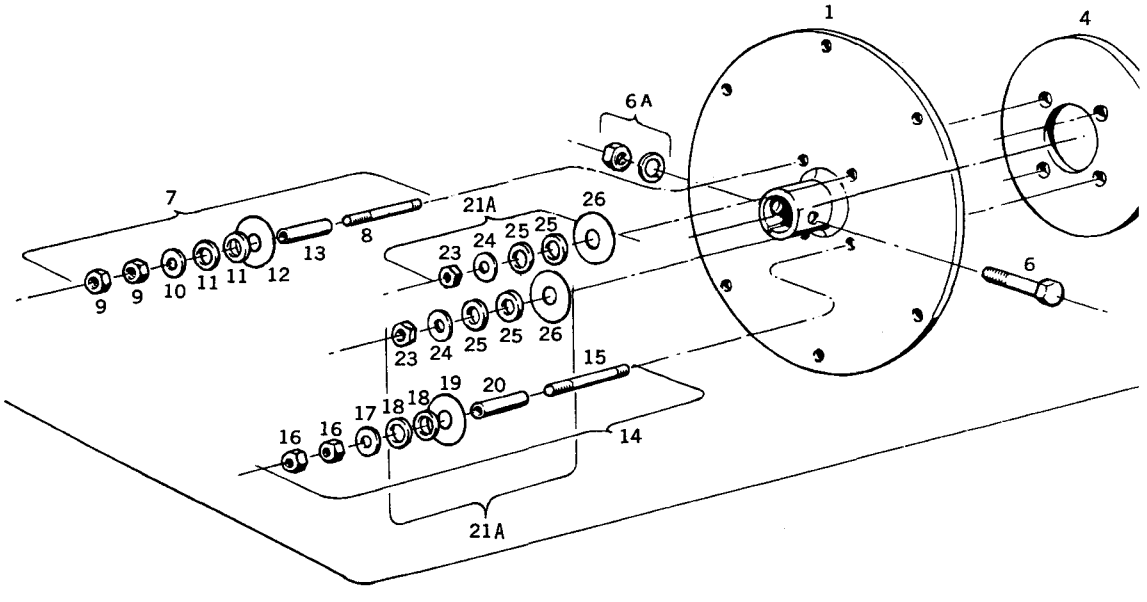
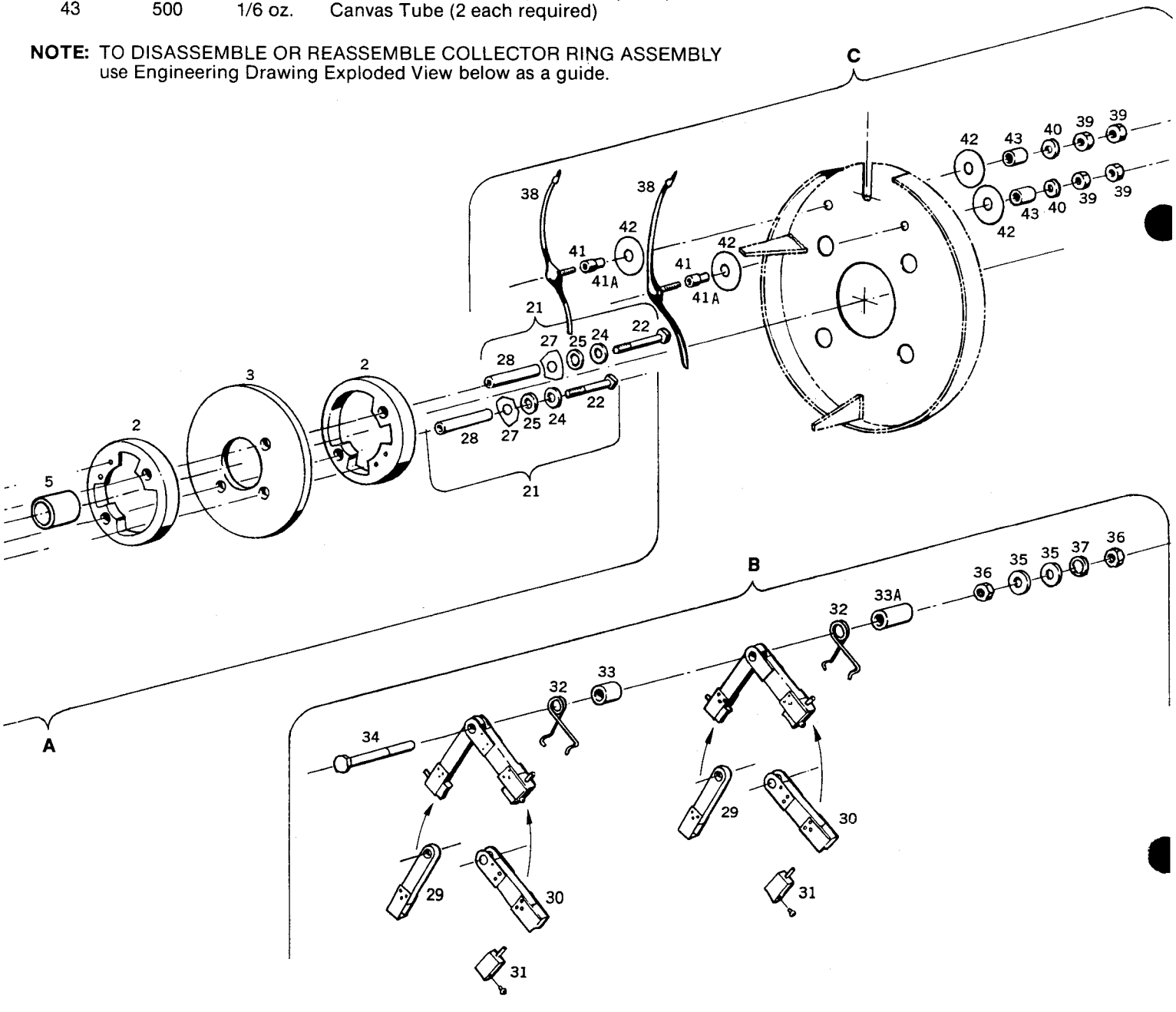


Figure T.

ENGINEERING DRAWING B1268-R(1)
MAGNET REEL — HIGH VOLT — LOW AMP
ELECTRICAL ASSEMBLY

ITEM NO.	PART NO.	WEIGHT EACH	DESCRIPTION
B	131		**BRUSH SET COMPLETE.** Includes:
29	174	5 oz.	Brush Holder — Male (2 each required)
30	170	6 oz.	Brush Holder — Female (2 each required)
31	53	3 oz.	Brush (4 each required)
32	55	1 oz.	Brush Holder Spring (2 each required)
33, 33A	65	½ oz.	Brush Spacer (2 pieces)
34	66	9 oz.	Brush Anchor Bolt w/Clamp Washers
35	171	1/3 oz.	Brush Bolt Clamp Washer (2 each required) — furnished with Brush Anchor Bolt
36	172	1 oz.	½" SAE Hex Nut (2 each required)
37	173	½ oz.	½" Lock Washer
C	68		**WIRE ASSEMBLY WITH INSULATION.** Includes:
38	68A		White and Black Wires (not sold separate from assembly)
39	162	½ oz.	⅜" Brass Nut (4 each required)
40	163	1/3 oz.	⅜" Brass Washer (2 each required)
41	75	1/8 oz.	Mica Tubes (2 each required)
41A	125T	1/8 oz.	Mica Tubes (2 each required)
42	227	1/9 oz.	Mica Washer, ⅝" hole (4 each required)
43	500	1/6 oz.	Canvas Tube (2 each required)

NOTE: TO DISASSEMBLE OR REASSEMBLE COLLECTOR RING ASSEMBLY use Engineering Drawing Exploded View below as a guide.



PARTS LIST— LOW VOLT-HIGH AMP ELECTRICAL COMPONENTS (SHRADER TYPE)

FOR RUDOMATIC® SINGLE BARREL COMBINATION AND STANDARD MAGNET REELS. ALL MODELS.
USE PART NUMBER WHEN ORDERING. DO NOT USE ITEM NUMBER.

ITEM NO.	PART NO.	WEIGHT EACH	DESCRIPTION
A	266		**COLLECTOR RING ASSEMBLY**
1	263	22 lbs.	Collector Ring Plate
2	56	3 lbs.	Collector Ring (2 each required)
3	264	13 oz.	Insulating Board — 4 hole
4	265	13 oz.	Insulating Board — 6 hole
5	58	3 oz.	Fiber Bushing
6	239	1 oz.	Terminal Stud Connector (2 each required)
7	59	3 oz.	Short Terminal Stud & Insulation (2 sets required) each set consisting of:
8	161	2 oz.	Short Terminal Stud
9	162	½ oz.	3/8" Brass Nut (2 each required)
10	163	1/3 oz.	3/8" Brass Washer
11	M100	1/15 oz.	Fiber Washer (2 each required)
12	227	1/9 oz.	Mica Washer, 5/8" hole
13	112T	½ oz.	Mica Tube
14	60	4 oz.	Long Terminal Stud & Insulation (2 sets required) each set consisting of:
15	164	3 oz.	Long Terminal Stud
16	162	½ oz.	3/8" Brass Nut (2 each required)
17	163	1/3 oz.	3/8" Brass Washer
18	M100	1/15 oz.	Fiber Washer (2 each required)
19	227	1/9 oz.	Mica Washer, 5/8" hole
20	225	½ oz.	Mica Tube
21, 21A	165	4 oz.	Anchor Bolt Assembly (2 each required) each assembly consisting of:
22	166	2½ oz.	Anchor Bolt, 3/8" x 4" Sq. Hd.
23	175	½ oz.	3/8" Steel Nut
24	485	1/3 oz.	3/8" Blk. Flat Washer (2 each required)
25	M100	1/15 oz.	Fiber Washer (3 each required)
26	227	1/9 oz.	Mica Washer, 5/8" hole
27	226	1/15 oz.	Mica Washer
28	325	1 oz.	Mica Tube
29, 29A	160	7 oz.	5/8" x 2¾" Cap Screw w/Nut and Lock Washer

OPEN OUT
FOLD

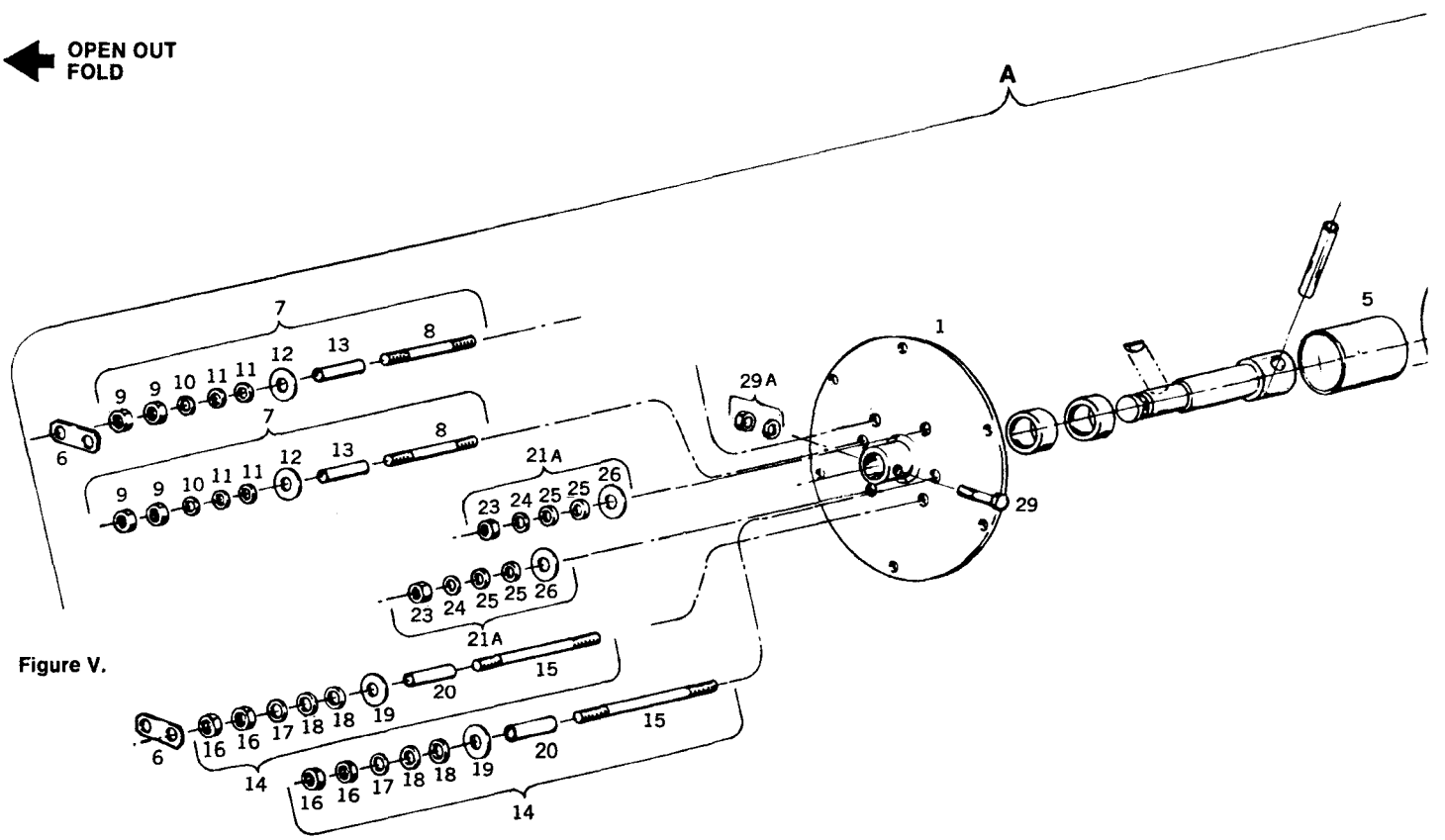
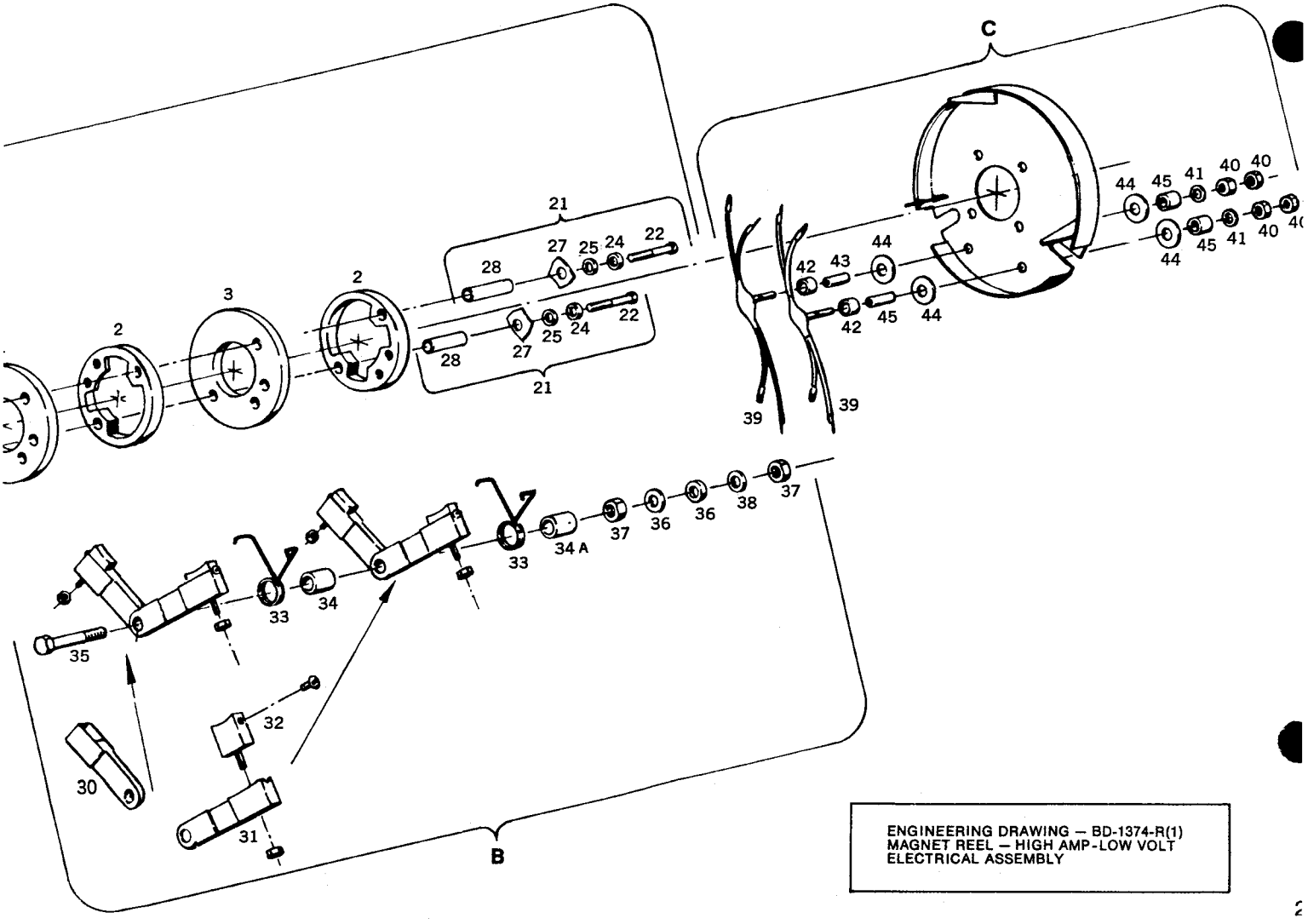


Figure V.

ITEM NO.	PART NO.	WEIGHT EACH	DESCRIPTION
B	131		**BRUSH SET COMPLETE** (one set is shown) — (two sets are required) each set consisting of:
30	174	5 oz.	Brush Holder — Male (2 each required)
31	170	6 oz.	Brush Holder — Female (2 each required)
32	53	3 oz.	Brush (4 each required)
33	55	1 oz.	Brush Holder Spring (2 each required)
34, 34A	65	½ oz.	Brush Spacer (2 pcs.)
35	66	9 oz.	Brush Anchor Bolt w/Clamp Washers
36	171	1/3 oz.	Brush Bolt Clamp Washer (2 each required)
37	172	1 oz.	Hex Nut, ½" SAE (2 each required)
38	173	½ oz.	½" Lock Washer
C	202		**WIRE ASSEMBLY WITH INSULATION**
39			White and Black Wires (Not sold separate from assembly)
40	242	1 oz.	½" Brass Nut (4 each required)
41	243	1 oz.	½" Brass Washer (2 each required)
42	280	½ oz.	Black Fiber Tube, 1" O.D. x ¾" Lg. (2 each required)
43	290	½ oz.	Natural Fiber Tube, 1⅜" Lg. (2 each required)
44	212	¼ oz.	Mica Washer, ¾" hole (4 each required)
45	285	½ oz.	Natural Fiber Tube, 1" O.D. x ½" Lg. (2 each required)

NOTE: TO DISASSEMBLE OR REASSEMBLE COLLECTOR RING ASSEMBLY use Engineering Drawing Exploded View below as a guide.



ENGINEERING DRAWING — BD-1374-R(1)
MAGNET REEL — HIGH AMP-LOW VOLT
ELECTRICAL ASSEMBLY

MOUNTING DIMENSIONS COMBINATION MAGNET REEL AND TAGLINE

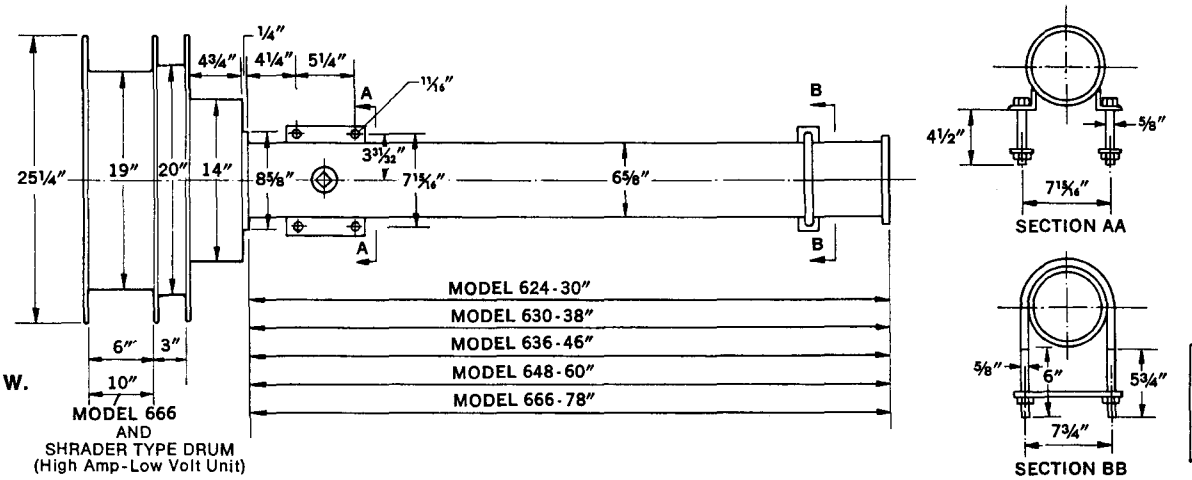


Figure W.

FROM ENGINEERING DRAWING NO. 1315-R

FAIRLEAD DIMENSIONS COMBINATION MAGNET REEL AND TAGLINE

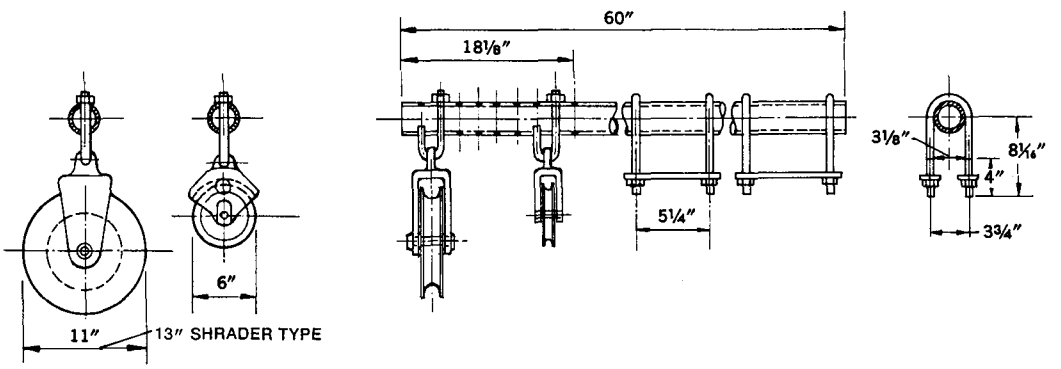


Figure X.

FROM ENGINEERING DRAWING NO. A-1509

MOUNTING DIMENSIONS STANDARD MAGNET REEL

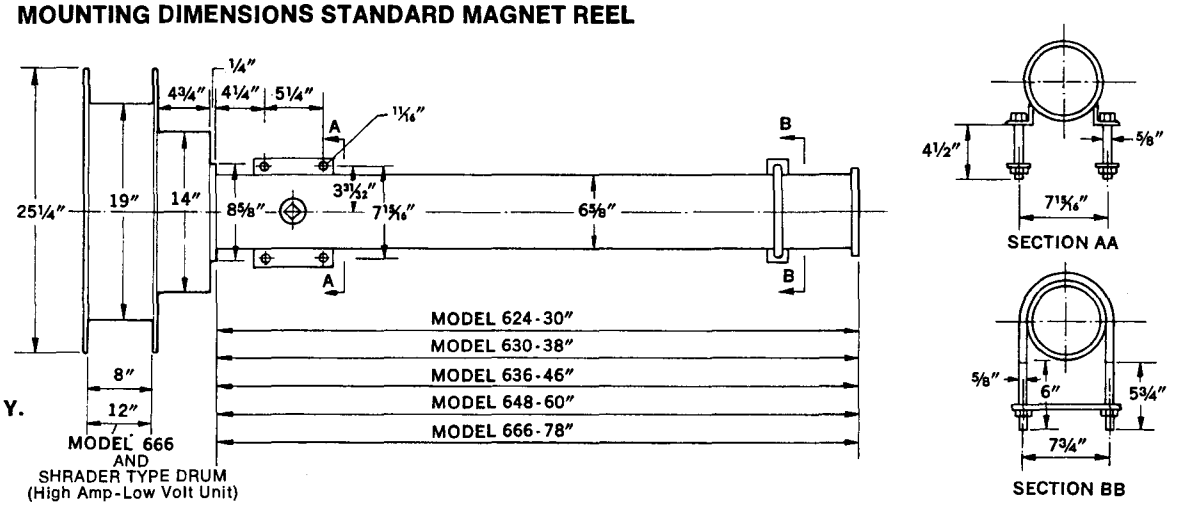


Figure Y.

FROM ENGINEERING DRAWING NO. A-1315R

FAIRLEAD DIMENSIONS STANDARD MAGNET REEL

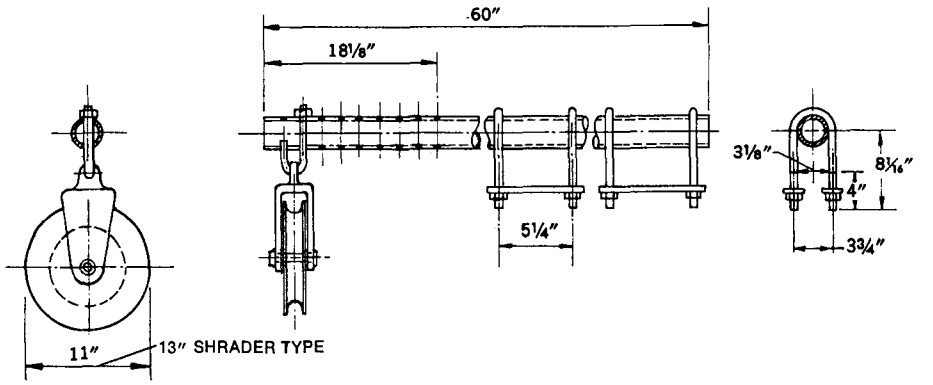


Figure Z.

FROM ENGINEERING DRAWING NO. A-1509

GENERAL SPECIFICATIONS DATA

Rudomatic® Single Barrel Combination and Standard Magnet Reels are manufactured in five basic models to accommodate various size magnets and loads. The charts below provide a range of data designed to serve as a guide in selecting the most suitable model.

To determine approximate length of electric cable for STANDARD MAGNET REELS, consult column with tagline cable pullout figures. Diameter and weight of magnet have no bearing in determining amount of electric cable to use.

Shear Pin Breaking Point. Models with a shear pin inside the main bearing (units manufactured after November, 1981) will prevent coil spring overwinding by breaking and releasing spring tension if magnet reel exceeds maximum recommended number of turns. Consult proper column in charts to determine maximum number of magnet reel turns for model before shear pin will break. To order main bearings with shear pins, see Parts List, page 13, Item 15; see page 17, Item 15 for units that use low volt-high amp power (Shrader type).

SPECIFICATIONS AND RECOMMENDATIONS FOR SINGLE BARREL CMR & SMR MODELS USED WITH HIGH VOLT-LOW AMP DC POWER

COMBINATION & STANDARD MAGNET REELS					MAGNETS		AMPERE 2 CONDUCTOR				
Model*	Housing Length	Tagline Cable Pullout From Neutral	Maximum Turns of Magnet Reel	Spring Dimension (.393 wire)	Dia.	Approx. Weight	DC Volts	Cold Amps	Elect. Cable	Generator Plant (KW)	Headroom (inch)
624	30″	45 ft.	8	6″ dia., 24″ closed, 36″ free	26″	900	230	8	No. 10	2	23
630	38″	60 ft.	11	6″ dia., 30″ closed, 42″ free	32″	1540	230	15	No. 10	5	28
636	46″	70 ft.	13	6″ dia., 36″ closed, 50″ free	37″	1600	230	22	No. 8	5	32
636	46″	70 ft.	13	6″ dia., 36″ closed, 50″ free	38″	2000	230	22	No. 8	7.5	34
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	45″	3100	230	30	No. 8	10	39
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	48″	3900	230	42	No. 6	10	41
666	78″	135 ft.	25	6″ dia., 66″ closed, 87″ free	48″	3900	230	42	No. 6	10	41
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	50″	2300	230	32	No. 6	10	41
666	78″	135 ft.	25	6″ dia., 66″ closed, 87″ free	50″	2300	230	32	No. 6	10	41
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	50″	4200	230	45	No. 4	15	42

*The same model number applies to both the Combination and Standard Magnet Reel. Except for tagline cable pullout, specifications are the same for both.

SPECIFICATIONS AND RECOMMENDATIONS FOR SINGLE BARREL CMR & SMR MODELS (Shrader type) USED WITH LOW VOLT-HIGH AMP DC POWER

This type of Magnet Reel is more desirable for use with cranes where DC generator (or welding generator) can be located near the magnet.

COMBINATION & STANDARD MAGNET REELS					MAGNET		AMPERE 2-CONDUCTOR					
Model†	Housing Length	Tagline Cable Pullout From Neutral	Maximum Turns of Magnet Reel	Spring Dimension (.393 wire)	Dia.	Approx. Weight	DC Volts	Cold Amps	Elect. Cable	Welder Amps	Generator Plant (KW)	Headroom (inch)
624	30″	45 ft.	8	6″ dia., 24″ closed, 36″ free	26″	900	35	50	No. 4	200	2	23
630	38″	60 ft.	11	6″ dia., 30″ closed, 43″ free	32″	1500	30	120	No. 1	200	5	28
636	46″	70 ft.	13	6″ dia., 36″ closed, 50″ free	37″	1600	45	120	No. 1	200	5	32
636	46″	70 ft.	13	6″ dia., 36″ closed, 50″ free	38″	2000	32	160	No. 1	200	7.5	34
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	45″	3100	40	180	No. 1	300	10	39
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	47″	3050	40	180	No. 1/0	300	10	41
666	78″	135 ft.	25	6″ dia., 66″ closed, 87″ free	47″	3050	40	180	No. 1/0	300	10	41
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	50″	2260	45	190	No. 1/0	300	10	41
666	78″	135 ft.	25	6″ dia., 66″ closed, 87″ free	50″	2260	45	190	No. 1/0	300	10	41
648	60″	90 ft.	18	6″ dia., 48″ closed, 65″ free	50″	4100	50	225	No. 1/0	300	15	42

† The same model number applies to both the Combination and Standard Magnet Reel. Except for tagline cable pullout, specifications are the same for both.

Warranty

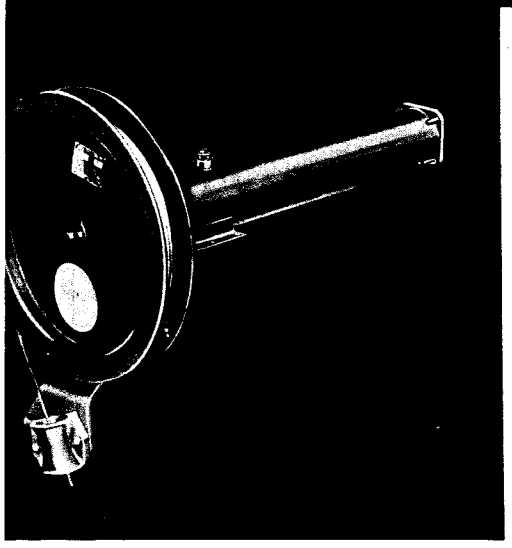
RUDOMATIC® inc. warrants each new RUDOMATIC® unit to be free from defects in material and workmanship. If any parts prove defective, new parts will be furnished at no cost. RUDOMATIC® TAGLINES, RUDOMATIC® COMBINATION MAGNET REELS AND TAGLINES, and spare parts for these units are warranted for a period of one year from the date of the original sale. All warranty claims must be handled directly with RUDOMATIC® inc., Los Angeles, California.

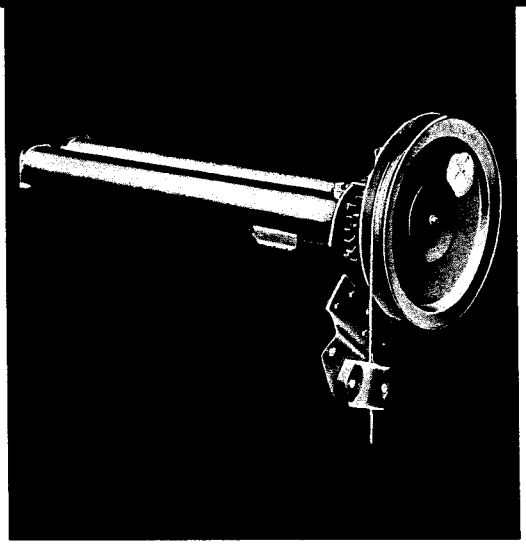
No warranty is extended on any RUDOMATIC® unit which has had its serial number altered, effaced, or removed.

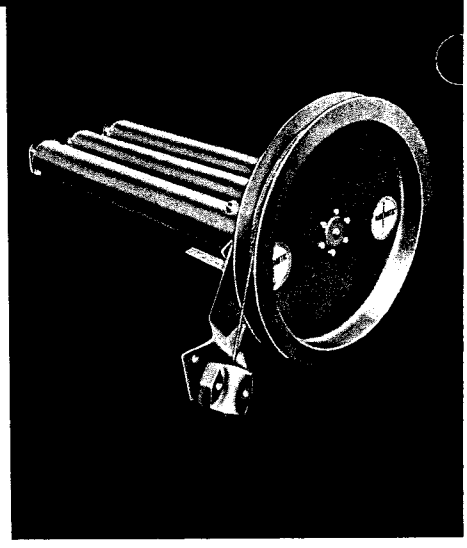
This warranty is in lieu of all other warranties, expressed or implied; and no person is authorized to assume for RUDOMATIC® inc. any other liabilities in connection with the sale of RUDOMATIC® products.

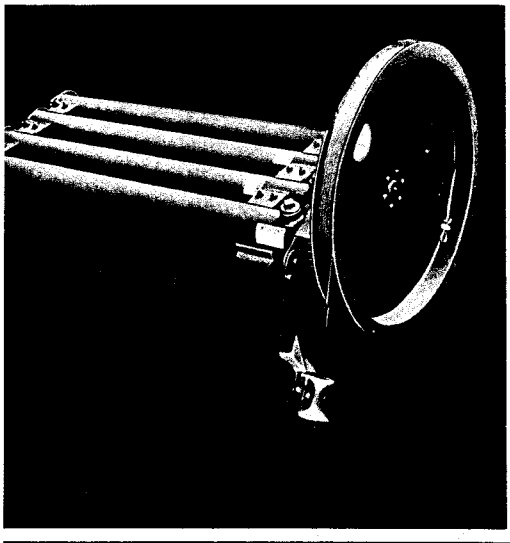
Rudomatic Taglines are sold and serviced by authorized dealers throughout the world. Contact Rudomatic factory, 2131 E. 25th Street, Los Angeles, California 90058, for information on nearest authorized dealer in your area. Telephone: 213/582-6314. Telex: 67-4714.

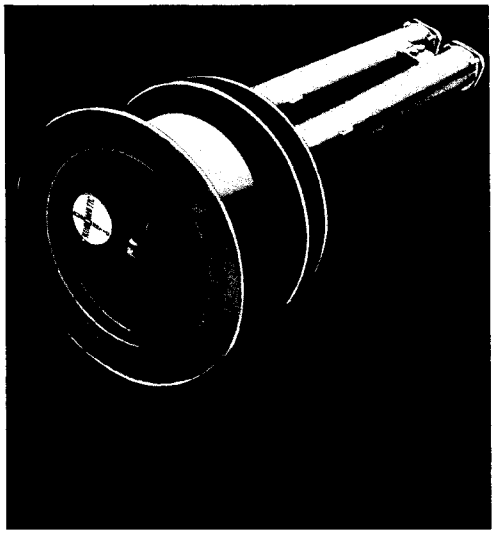
other RUDOMATIC® coil-spring products

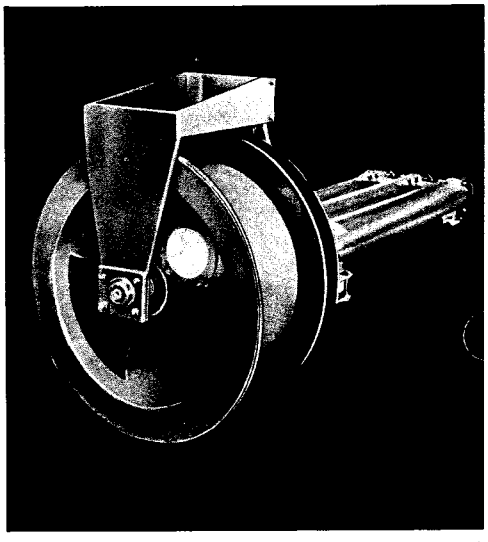


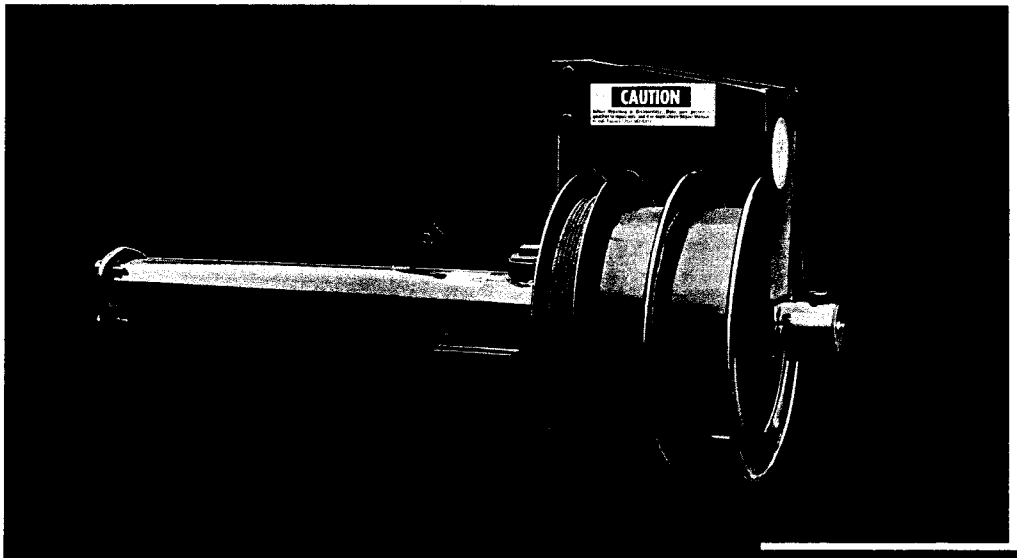


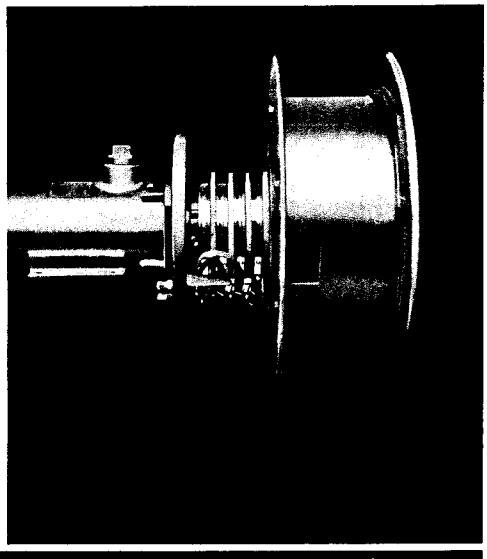












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2131 E. 25th Street, Los Angeles, Calif. 90058
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