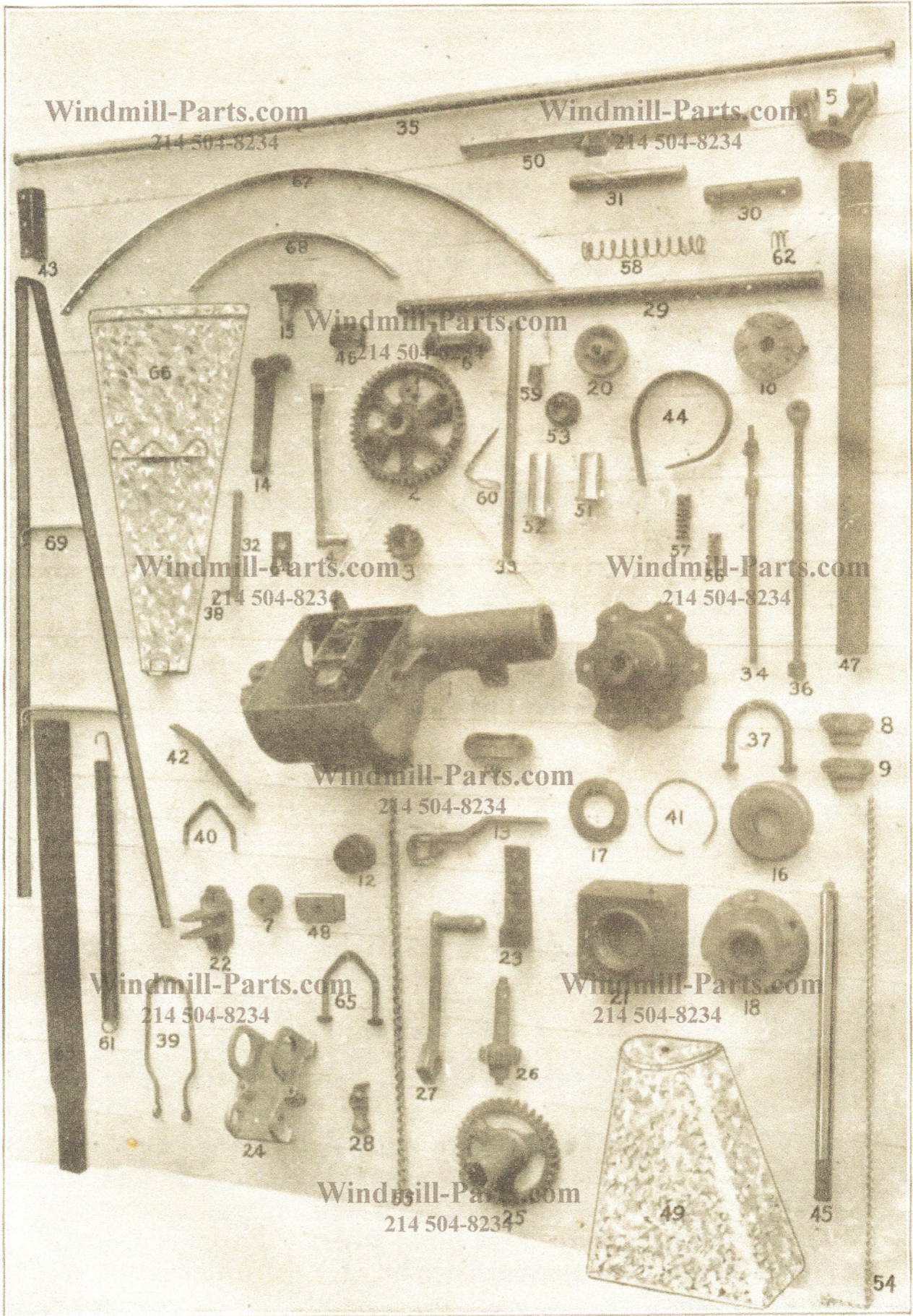


# Repair Parts for "Challenge 27" Windmills



| Ref. No. | Part Name                            | 6' & 6 1/4' | 8'-385 lbs. | 8' & 9'    | 10 Foot    | 12 Foot    | 14 Foot    | 16 Foot    | 18 Foot    | 22 Foot     |
|----------|--------------------------------------|-------------|-------------|------------|------------|------------|------------|------------|------------|-------------|
| No.      |                                      | No. \$      | No. \$      | No. \$     | No. \$     | No. \$     | No. \$     | No. \$     | No. \$     | No. \$      |
| 1        | Main Casting-Timken                  | 3703 10.00  | 3703 10.00  | 3678 12.00 | 4004 17.00 | 3598 31.00 | 4037 50.00 | 3714 72.00 | 3714 72.00 | 4088 265.00 |
| 1        | Main Casting-Bronze                  | 4286 10.00  | 4286 10.00  | 4287 12.00 | 4288 17.00 | 4332 38.00 | 4400 50.00 |            |            |             |
| 1        | Main Casting-Timken                  | 3629 10.00  | 3629 10.00  |            |            |            |            |            |            |             |
| 1        | Main Casting-Babbitt                 | 3642 10.00  | 3642 10.00  |            |            |            |            |            |            |             |
|          | Main Casting-Timken-10" & 12" Stroke |             |             |            |            | 4297 38.00 |            |            |            |             |
|          | Gear-each                            |             |             |            |            | 4298 4.50  |            |            |            |             |
|          | Pinion-each                          |             |             |            |            | 4299 1.75  |            |            |            |             |
|          | Pitman-each                          |             |             |            |            | 4300 1.00  |            |            |            |             |
| 2        | Gear-each                            | 3630 1.75   | 3630 1.75   | 3679 2.00  | 4005 2.75  | 3599 3.50  | 4038 6.30  | 3715 13.00 | 3715 13.00 | 4089 27.50  |
| 3        | Pinion-each                          | 3631 .75    | 3631 .75    | 3516 1.00  | 4006 1.25  | 3600 1.50  | 4039 2.75  | 3716 4.00  | 4167 4.00  | 4090 11.50  |
| 4        | Pitman-each                          | 3632 .40    | 3632 .40    | 3517 .50   | 4007 .75   | 3601 1.00  | 4040 1.50  | 3717 3.00  | 3717 3.00  | 4091 7.00   |
| 5        | Crosshead                            | 3633 .60    | 3633 .60    |            | 3680 .80   | 3602 1.40  | 3602 1.40  |            |            |             |
| 5        | Crosshead-3/4" Tap                   | 3833 .60    | 3833 .60    |            |            |            |            |            |            |             |
| 5 1/2    | Crosshead Complete                   | 3935 3.60   | 3935 3.60   | 3935 3.55  | 4008 5.30  | 3941 6.75  | 3941 6.75  | 3942 19.00 | 3942 19.00 | 4092 33.00  |
|          | Crosshead only                       | 3935 2.00   | 3935 2.00   | 3936 2.25  | 4008 3.00  | 3941 3.75  | 3941 3.75  | 3942 7.50  | 3942 7.50  | 4092 14.00  |
|          | Crosshead Roller-each                | .40         | .40         | .40        | .70        | 1.00       | 1.00       | 4.50       | 4.50       | 8.00        |
|          | Crosshead Pin                        | .25         | .25         | .25        | .30        | .40        | .40        | 1.00       | 1.00       | 1.50        |
| 6        | Guide Rod Bracket                    | 3981 .60    | 3981 .60    | 3982 .70   | 4009 .80   | 3943 1.00  | 1044 1.20  | 3720 2.50  | 3720 2.50  | 4093 4.50   |
| 7        | Pullout-Sheave                       | 1108 .25    | 1108 .25    | 1108 .25   | 1108 .25   | 1108 .25   | 3725 .90   | 3725 .90   | 3725 .90   | 4094 1.60   |
| 8        | Plunger Guide-Right                  | 3524 .25    | 3524 .25    | 3524 .25   | 3524 .25   | 3605 .25   | 3605 .25   | 3721 .60   | 3721 .60   | 4095 3.70   |
| 9        | Plunger Guide-Left                   | 3525 .25    | 3525 .25    | 3525 .25   | 3525 .25   | 3606 .25   | 3606 .25   | 3722 .60   | 3722 .60   | 4096 3.70   |
| 8        | Plunger Guide-Right                  | 3635 .25    | 3635 .25    |            |            |            |            |            |            |             |
| 9        | Plunger Guide-Left                   | 3636 .25    | 3636 .25    |            |            |            |            |            |            |             |
| 10       | Nosepiece                            | 3649 .75    | 3650 .75    | 4056 .80   | 4054 .90   | 4055 1.50  | 4049 2.00  | 3724 6.50  | 4166 6.50  | 4100 15.00  |
| 11       | Spider Hub                           | 3637 1.75   | 3651 1.75   | 3526 1.80  | 4010 2.80  | 3945 5.50  | 3691 8.50  | 3723 13.50 | 4165 16.00 | 4099 38.00  |
| 12       | Shaft Plug for Main Shaft            | 3527 .40    | 3527 .40    | 3527 .40   | 3676 .40   | 3676 .40   | 3676 .40   | 3676 .40   | 3676 .40   | 3676 .40    |
| 12       | Shaft Plug for Gear Shaft            |             |             |            |            |            |            | 3527 .40   | 3527 .40   | 4097 4.25   |
| 13       | Pullout Swivel                       | .25         | .25         | .25        | .25        | 3608 .40   | 4053 .70   | 3726 .70   | 3726 .70   | 4098 1.50   |
| 14       | Brake Lever                          | 3523 .40    | 3523 .40    | 3523 .40   | 4013 .40   | 3610 .50   | 3693 .60   | 3727 1.75  | 3727 1.75  | 4101 3.00   |
| 15       | Brake Lever Bracket                  | 3529 .30    | 3529 .30    | 3529 .30   | 3529 .30   | 3611 .40   | 3611 .40   | 3728 1.25  | 3728 1.25  | 4102 2.00   |
| 16       | Top Ball Race                        | 3427 .60    | 3427 .60    | 3427 .60   | 3427 .60   | 3367 1.00  | 3367 1.00  | 3733 5.00  | 3733 5.00  | 4116 8.00   |
| 17       | Bottom Ball Race                     | 3428 .40    | 3428 .40    | 3428 .40   | 3428 .40   | 3368 .60   | 3368 .60   |            |            |             |
|          | Turntable Balls per Set              | .70         | .70         | .70        | .70        | 2.00       | 2.00       | 11.00      | 11.00      | 12.00       |
| 16       | Top Ball Race                        | 3565 .60    | 3565 .60    |            |            |            |            |            |            |             |
| 17       | Bottom Ball Race                     | 3566 .40    | 3566 .40    |            |            |            |            |            |            |             |
| 18       | Mast Guide with Bolts                | 1490 1.00   | 1490 1.00   | 1490 1.00  | 1490 1.00  | 1585 1.25  | 1585 1.25  | 3731 3.50  | 3731 3.50  | 4104 8.00   |
| 18       | Mast Guide                           | 3640 1.00   | 3640 1.00   |            |            |            |            |            |            |             |
| 19       | Mast Clamp                           | 3583 .30    | 3583 .30    | 3583 .30   | 4018 .40   | 3615 .50   | 3615 .50   | 3729 2.00  | 3729 2.00  | 4126 11.50  |
| 19       | Mast Clamp                           | 3641 .30    | 3641 .30    |            |            |            |            |            |            |             |
| 20       | Crosshead Sheave                     | 3667 .60    | 3667 .60    |            | 3681 .60   | 3670 1.00  | 3670 1.00  |            |            |             |
| 21       | Tower Cap for Steel Tower            | 3574 1.10   | 3574 1.10   | 3574 1.10  | 3574 1.10  | 3366 2.10  | 3366 2.10  | 3732 12.00 | 3732 12.00 | 4107 21.00  |
| 21       | Tower Cap for Wood Tower             | 3656 2.50   | 3656 2.50   | 3656 2.50  | 3656 2.50  | 3390 6.00  | 3390 6.00  |            |            |             |
| 22       | Pullout Bracket                      | 1079 .40    | 1079 .40    | 1079 .40   | 1079 .40   |            |            |            |            |             |
| 23       | Pump Connector-old style             | 76 .50      | 76 .50      | 76 .50     | 76 .50     | 160 .60    | 160 .60    |            |            |             |
| 23       | Pump Connector-new style             | 4198 .60    | 4198 .60    | 4198 .60   | 4198 .60   | 4220 .75   | 4220 .75   | 325 2.60   | 325 2.60   | 4109 5.00   |
| 24       | Windlass Frame                       | 2175 .60    | 2175 .60    | 2175 .60   | 2175 .60   | 1770 1.75  | 1770 1.75  | 4136 5.00  | 4136 5.00  | 4136 5.00   |
| 25       | Windlass Gear                        | 2177 .25    | 2177 .25    | 2177 .25   | 2177 .25   | 1771 1.25  | 1771 1.25  | 4137 4.25  | 4137 4.25  | 4137 4.25   |
| 26       | Windlass Pinion                      |             |             |            |            | 1772 .70   | 1772 .70   | 4138 2.00  | 4138 2.00  | 4138 2.00   |
| 27       | Windlass Handle                      | 2176 .50    | 2176 .50    | 2176 .50   | 2176 .50   | 1773 .50   | 1773 .50   | 681 .75    | 681 .75    | 681 .75     |
| 28       | Windlass Dog                         | 2178 .25    | 2178 .25    | 2178 .25   | 2178 .25   | 1774 .25   | 1774 .25   | 4139 .30   | 4139 .30   | 4139 .30    |
|          | Windlass Reel                        |             |             |            |            |            |            | 4146 1.50  | 4146 1.50  | 4146 1.50   |
| 65       | Windlass U-Bolt                      |             |             |            |            |            | .30        | .30        |            |             |
|          | Shaft for Windlass Handle            |             |             |            |            |            |            | 1.40       | 1.40       | 1.40        |
|          | Shaft for Windlass Reel              |             |             |            |            |            |            | 2.60       | 2.60       | 2.60        |
| 29       | Main Shaft with Keys                 | 1.30        | 1.75        | 2.25       | 2.50       | 7.50       | 10.50      | 21.00      | 29.00      | 57.00       |
|          | Main Shaft-Nut-slotted               | .15         | .15         | .20        | .25        | .30        | .30        | 1.00       | 1.50       | 5.25        |
| 30       | Gear Shaft                           | .80         | .80         | .85        | 1.30       | 1.60       | 2.20       | 5.00       | 5.00       | 7.00        |
| 31       | Pitman Shaft                         | .30         | .30         | .40        | .60        | .90        | 1.10       | 2.20       | 2.20       | 4.50        |
| 32       | Vane Hinge Pin                       | .20         | .20         | .30        | .50        | .90        | .90        | 1.60       | 1.60       | 5.00        |
| 33       | Guide Rods-each                      | .40         | .40         | .50        | .70        | 1.00       | 1.60       | 4.20       | 4.20       | 6.00        |
|          | Guide Rod Brace                      | .30         | .30         | .35        | .40        | .50        | .60        | 1.00       | 1.00       | 1.40        |
| 34       | Brake Rod and Nuts                   | .25         | .25         | .25        | .30        | .40        | .60        | .90        | .90        | 2.20        |
| 35       | Plunger Rod                          | .60         | .60         | .60        | .70        | 1.20       | 6.20       | 14.00      | 14.00      | 22.00       |
| 36       | Bumper Rod                           | .25         | .25         | .25        | .30        | .90        | 1.10       | 1.60       | 1.60       | 2.60        |
|          | Bumper Rod Bolt                      |             |             |            |            |            |            | .50        | .50        |             |
| 37       | Mast U-Bolt & Nuts                   | .25         | .25         | .25        | .25        | .30        | .30        | 2.60       | 2.60       |             |
| 38       | Vane Pin Lock                        | .10         | .10         | .10        | .10        | .10        | .15        | .20        | .20        |             |
| 39       | Pullout Yoke                         | .25         | .25         | .25        | .25        |            |            |            |            |             |
| 40       | Pullout Staple & Nuts                | .25         | .25         | .25        | .25        |            |            |            |            |             |
| 41       | Ball Retaining Ring                  | .15         | .15         | .15        | .15        | .25        | .25        |            |            |             |

| Ref. No. | Part Name                              | 6' & 6 3/4' No. \$ | 8'-385 lbs. No. \$ | 8' & 9' No. \$ | 10 Foot No. \$ | 12 Foot No. \$ | 14 Foot No. \$ | 16 Foot No. \$ | 18 Foot No. \$ | 22 Foot No. \$ |
|----------|--|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 42       | Vane Spring Arm.....                   | .15                | .15                | .15            | .15            | .40            | 1.00           | 1.60           | 1.60           | 3.30           |
|          | Brace for Vane Spring Arm.....         |                    |                    |                |                | .40            | .40            | .80            | .80            | 2.10           |
| 43       | Plunger Rod Clevis—old style.....      | .20                | .20                | .20            | .20            |                |                |                |                |                |
|          | Plunger Rod Swivel—new style.....      | 4229 1.75          | 4229 1.75          | 4229 1.75      | 4229 1.75      | 4261 4.00      | 4051 16.00     | 4011 18.00     | 4011 18.00     | 4111 14.00     |
| 44       | Brake Band.....                        | .25                | .25                | .25            | .25            | .30            | .30            | .60            | .60            | 1.30           |
|          | Brake Band Guide.....                  |                    |                    |                |                |                |                | .60            | .60            | .70            |
| 45       | Pullout Pipe and Bar.....              | .80                | .80                | .80            | .90            | 2.80           | 3.20           | 7.00           | 7.00           | 7.00           |
|          | Pullout Assembly Complete.....         | 1.70               | 1.70               | 1.70           | 1.80           | 4.50           | 5.00           | 10.00          | 10.00          | 12.00          |
|          | Pullout Guide—channel.....             |                    |                    |                |                |                |                | 1.60           | 1.60           | 3.20           |
|          | Pullout Guide—angle.....               |                    |                    |                |                |                |                | .60            | .60            |                |
|          | Pullout Strap.....                     |                    |                    |                |                |                |                | .30            | .30            |                |
| 46       | Gear Clamp.....                        | .15                | .15                | .15            | .15            | .40            | .60            | 2.30           | 2.30           | 3.80           |
| 47       | Mast Pipe.....                         | 1.40               | 1.40               | 1.40           | 1.40           | 6.50           | 6.50           | 13.50          | 13.50          | 44.00          |
| 47*      | Mast Pipe.....                         | 1.00               | 1.00               | 1.00           | 1.00           |                |                |                |                |                |
| 48       | Sheave Cover.....                      | .10                | .10                | .10            | .10            | .15            | .35            | .60            | .60            |                |
|          | Sheave Pin.....                        |                    |                    |                |                |                | .40            | .80            | .80            | .80            |
| 49       | Helmet.....                            | 2.50               | 2.50               | 3.00           | 3.50           | 5.50           | 10.00          |                | 10.00          | 17.00          |
| 50       | Pump Rod Guide—Triple.....             | .80                | .80                | .80            | .80            | .90            | .90            | 3.00           | 3.00           | 8.50           |
|          | Pullout Guide Bracket.....             | 4035 .30           | 4035 .30           | 4035 .30       | 4035 .30       | 4035 .30       | 4035 .30       | 4036 .40       | 4036 .40       | 4141 1.75      |
|          | Pullout Guide Sheave.....              | 1739A .15          | 1739A .15          | 1739A .15      | 1739A .15      | 1739A .15      | 1739A .15      | 1739A .15      | 1739A .15      | 4142 1.20      |
| 51       | Babbitt Box—Rear.....                  | 203B .70           | 203B .70           | 201B .80       |                |                |                |                |                |                |
| 52       | Babbitt Box—Front.....                 | 204B .90           | 204B .90           | 200B 1.00      |                |                |                |                |                |                |
| 53       | Timken Bearings—each.....              | 2.50               | 2.50               | 2.50           | 3.00           | 3.25           | 5.00           | 9.00           | 10.00          | 12.50          |
|          | Bronze Bearings—Rear.....              | 1x3 1.30           | 1x3 1.30           | 1x3 1.50       | 1x3 1.70       | 1x3 2.10       | 1x3 2.70       |                |                |                |
|          | Bronze Bearings—Front.....             | 1x3 1.30           | 1x3 1.30           | 1x3 1.50       | 1x3 1.70       | 1x3 2.10       | 1x3 2.70       |                |                |                |
|          | Bronze Bearing for Vane Hinge.....     | .35                | .35                | .35            | .40            | .60            | .60            | .90            | .90            | 3.25           |
|          | Bronze Bearing for Gear.....           |                    |                    |                |                |                | 1.40           | 3.00           | 3.00           | 7.00           |
| 54       | Pullout Chain.....                     | .50                | .50                | .50            | .50            | 1.00           | 1.00           | 2.00           | 2.00           | 2.80           |
| 55       | Windlass Chain.....                    | .25                | .25                | .25            | .25            | .60            | .60            | .75            | .75            | .75            |
| 56       | Brake Spring.....                      | .10                | .10                | .10            | .10            | .25            | .25            | .50            | .50            | .90            |
| 57       | Bumper Spring—short.....               | .10                | .10                | .10            | .10            | .20            | .20            | .50            | .50            | 1.00           |
| 57       | Bumper Spring—long.....                | .10                | .10                | .10            | .10            | .25            | .25            | .60            | .60            | 1.20           |
| 58       | Shaft Oil Conveyor—Timken.....         | .10                | .10                | .10            | .10            | .25            | .25            | .30            | .50            | .90            |
| 58       | Shaft Oil Conveyor—Bronze.....         | .10                | .10                | .10            | .10            | .25            | .25            |                |                |                |
| 59       | Guide Rod Oil Conveyor.....            | .10                | .10                | .10            | .10            | .20            | .30            | .50            | .50            | .60            |
| 60       | Oil Elevator—new style.....            | .20                | .20                | .20            | .20            | .80            | 4461 4.80      | 4441 1.25      | 4441 1.25      | 4440 2.25      |
| 61       | Vane Spring.....                       | .60                | .60                | .75            | .75            | 2.60           | 5.50           | 10.50          | 11.50          | 18.00          |
| 62       | Oil Retainer Spring.....               | .10                | .10                | .10            | .10            | .10            | .15            | .15            | .40            | 1.00           |
| 63       | Wood Pullout Lever—discontinued.....   |                    |                    |                |                |                |                |                |                |                |
| 64       | Clevis Bearing Block.....              |                    |                    |                | .50            | .50            | .50            |                |                |                |
| 66       | Wheel Slats only.....                  | .60                | .70                | .70            | .80            | 1.00           | 1.50           | 2.50           | 3.25           | 4.00           |
| 67       | Wheel Rim—outside.....                 | .40                | .40                | .40            | .60            | .90            | 1.00           | 1.50           | 2.25           | 2.50           |
| 68       | Wheel Rim—inside.....                  | .25                | .25                | .25            | .40            | .50            | .60            | .80            | .90            | 1.00           |
| 69       | Wheel Arms.....                        | .60                | .70                | .70            | 1.00           | 2.00           | 2.25           | 4.00           | 8.00           | 13.00          |
|          | Wheel Slats Complete.....              | .70                | .80                | .80            | .90            | 1.30           | 1.90           | 3.00           | 4.00           | 5.00           |
|          | Slat Clips for Complete Wheel.....     | .25                | .25                | .25            | .25            | .60            | .70            | 2.50           | 2.60           | 2.70           |
|          | Slat Brackets for Complete Wheel.....  | .40                | .40                | .40            | .40            | 3.75           | 4.50           | 4.00           | 4.20           | 12.00          |
|          | Wheel Sections—each.....               | 2.25               | 3.00               | 3.00           | 4.00           | 6.25           | 8.00           | 12.00          | 16.00          | 22.00          |
|          | Vane Sheet.....                        | 2.25               | 3.25               | 3.25           | 3.25           | 9.00           | 11.00          | 20.00          | 20.00          | 34.00          |
|          | Vane Stem—bare.....                    | 2.00               | 2.75               | 3.00           | 4.00           | 13.00          | 14.00          | 32.00          | 32.00          | 80.00          |
|          | Vane Spring Adjusting Rod.....         |                    |                    |                |                |                | 1.00           | 1.00           | 1.00           | 1.25           |
|          | Vane Spring "S" Hook.....              |                    |                    |                |                |                | .50            | .50            | .50            | 1.25           |
|          | Crosshead Oiler.....                   | .15                | .15                | .15            | .15            | .20            | .25            | .30            | .30            |                |
|          | Ball Bearing for Plgr. Rod Swivel..... |                    |                    |                |                |                | 1105 3.50      | 1106 3.60      | 1106 3.60      | 1108 8.00      |
|          | Turntable Clamp.....                   |                    |                    |                |                |                | 3734 .75       | 3734 .75       |                |                |
|          | Angle Washer.....                      |                    |                    |                |                |                | 1316 .15       | 1316 .15       |                |                |
|          | Angle Washer.....                      |                    |                    |                |                |                | 3862 .25       | 3862 .25       |                |                |
|          | Dust Cap.....                          | .15                | .15                | .15            | .15            | .15            | 4311 1.60      | 4312 1.70      | 4313 1.70      | 4314 2.60      |
|          | Spacing Collar.....                    |                    |                    |                |                |                | 3819 .20       | 3819 .20       |                |                |
|          | Vane Thrust Lug.....                   |                    |                    |                |                |                | 3802 .70       | 3802 .70       |                |                |
|          | Vane Center Lug.....                   |                    |                    |                |                |                | 3803 1.30      | 3803 1.30      |                |                |
|          | Spring Lug.....                        |                    |                    |                |                |                | 3804 .60       | 3804 .60       |                |                |
|          | Vane Spring Swivel.....                |                    |                    |                |                |                | 3953 .50       | 3953 .50       |                |                |
|          | Vane Brace Rod.....                    |                    |                    |                |                |                |                | .90            | .90            |                |
|          | Vane U-Bolt.....                       |                    |                    |                |                |                |                | .40            | .40            | .40            |
|          | Spring Adjusting Nut.....              |                    |                    |                |                |                | 4050 .70       | 3955 .70       | 3955 .70       | 3955 .70       |
|          | Splice Irons.....                      |                    |                    |                |                |                |                | 376 .60        | 376 .60        | 1.80           |

\* These parts are used with motors having 1 1/2-inch mast pipe