

# 'BULLDOG' MODEL

## OWNER'S HANDBOOK

**GUY MACHINERY**  
P.O. BOX 5  
WOODSTOCK, IL 60098  
(815)338-0600 FAX(815)338-2525



ROTARY HOES LIMITED  
WEST HORNDON, ESSEX  
ENGLAND

Telegraphic Address  
ROTOVATE BRENDWOOD

Telephone No.  
HERONGATE 361



# GENERAL MAINTENANCE

## Initial Running and Setting Up

1. Before attempting to start the machine make sure that correct lubrication has been carried out, as described below, and also as described in the Engine Handbook.
2. Make sure that the engine clutch lever is pushed forward (Illustration No. 145).
3. Start the engine as described in the Engine Handbook. This is generally to flood the carburettor, open the throttle slightly and start up, using whatever method is employed on the engine.
4. To stop the engine, close the throttle control if fitted, and let the engine die down. If an earthing strip is used on the plug, use this to stop the engine.
5. Set the handlebar position by unscrewing hand nut Illustration No. 119 and raising the handlebars until a comfortable position is found. Screw up the hand nut tight. Allow the bars to be a little on the high side to allow for lower position when machine is at work.

## Moving off and Stopping

1. Start the engine (make sure the engine clutch lever is pushed forward).
2. The machine may now be pushed to the work site.
3. To drive the machine to the site. Engage the wheel lock by turning lever (Illustration No. 39) in an anti-clockwise direction. Lift the handlebars until the rotor clears the ground, pull the engine clutch lever right back towards you and the machine will move off. Keep the handlebars up to save damage to paths etc.
4. Stop the forward travel by pushing the clutch lever forward.
5. Where it is required to turn the machine round, disengage the wheel lock by turning lever (Illustration No. 39) clockwise.

## Starting Work.

1. With engine running, set the depth of cut required by moving hand lever Illustration No. 101 upwards.
2. Engage the wheel lock.
3. Lift the rotor clear of the ground, engage the engine clutch and move off lowering

the rotor into the ground at the same time. When working rough ground it is better to make the first cut shallow followed by deeper cuts.

## Lubrication

1. Recommended lubricant : SAE 140.
2. Transmission and rotor gear boxes should be filled with oil to just over the half-way line. When the rotor unit is held squarely, the oil in the rotor gear box should be level with the filler hole (Illus. No. 61). This point can best be oiled with the machine tipped sideways. To lubricate the transmission gear box, slacken the top forward setscrew securing the side plate (Immediately above Illus No. 17). This setscrew can be removed to create an oil level hole when the machine is tipped forward on its cradle. Replace the setscrew when oiling has been completed. The transmission box takes approx  $\frac{1}{2}$  pt. and the rotor gear box  $\frac{1}{3}$  pt. of oil.
3. Oil the following points occasionally : depth control pivot bolt (Illus. No. 106), depth control quadrant and clip (Illus. No. 102), hinge of rear shield, wheel lock trunnion (Illus. No. 38) and bush (Illus. No. 33), clamp nut and hinge (Illus. No. 50), clutch lever spindle and roller (Illus. Nos. 133 and 139) base plate pivot bolt (Illus No. 127).

## Maintenance

1. The engine drive belt must be kept tight, but should not be over-tightened. To adjust the belt : loosen wing nut (Illus. No. 136) and rotate cam (Illus. No. 137) until the necessary tension is obtained, then re-tighten wing nut. The belt stop (Illus. No. 122) should also be adjusted to suit engine position variation.
2. The quick detaching clamps (Illus. Nos. 49 and 50) should be kept well-tightened to prevent misalignment of the rotor unit and adjusted with lock-nut and bolt (Illus. Nos. 47 and 48) to take up any wear which may occur. The engine pulleys must be kept in line over the pulley faces.
3. **Blades.** Examine the blades daily. Straighten any bent blades. Badly-worn blades should be replaced. If the edge of a blade wears thin and tends to turn inwards, place the end of a hammer behind the blade, and with another hammer tap the edge into position.

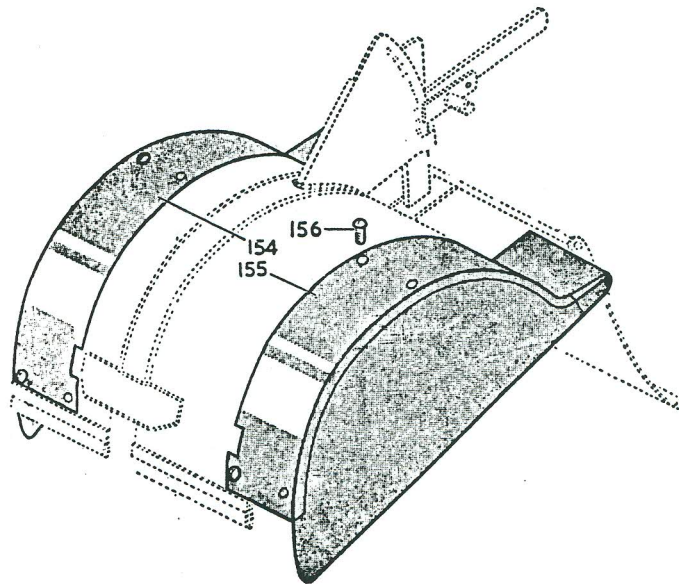
4. **Removing the Rotor Unit.** Slacken off the clamp screw (Illus. No. 51) and lift clamp arm (Illus No. 50). Open clamps (Illus. No. 49) and withdraw the Rotor Unit.

#### Attachments

1. **Fitting the Furrower :** Remove depth control skid (Illus. No. 105), slide furrower (Illus. No. 150) over skid and re-fit. Bolt (Illus No. 151) should be tightened in the required position.

2. **Fitting Wheel Weights :** Offer each weight squarely to its wheel, with the holes in line. Put bolts and spring washers through the wheel weights and screw to the wheel, then secure by locknut (Illus No. 29) on the other side of the wheel.

3. **Throttle Control :** Two bolt holes are provided in the handlebars to take the throttle control lever. Your Engine Handbook will contain full instructions.



Fitting the Side Shields



# LIST OF PARTS

WHEN ORDERING SPARE PARTS ALWAYS QUOTE THE NUMBER OF YOUR MACHINE, AND THE CORRECT PART NUMBER (NOT THE ILLUSTRATION NUMBER).

The number of your machine is stamped on the brass patent plate on the shield, and between the two clamps on the rear end of the transmission housing.

All directions in the following list are given left or right looking forward from the rear of the machine.

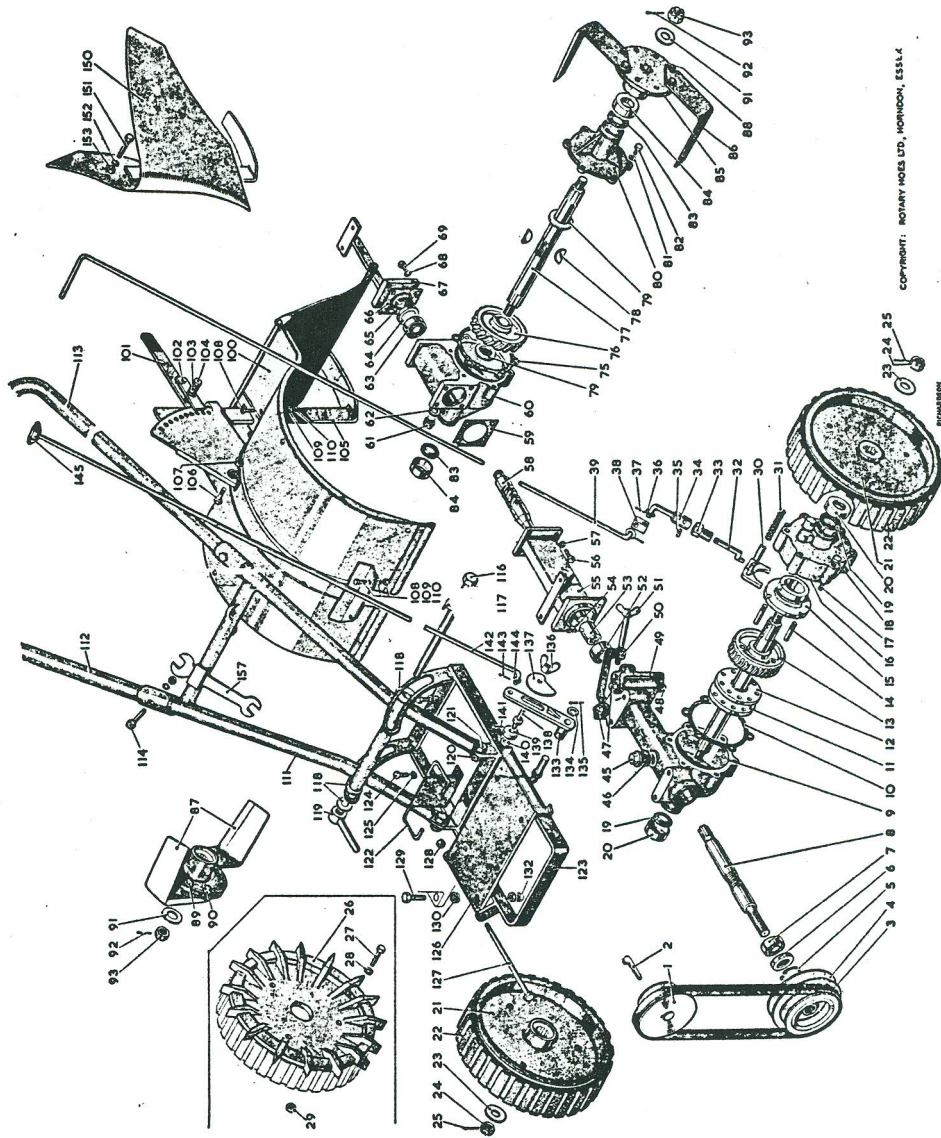
## DRIVE

| Illust. No. | Part No.          | Description  | No. off. |
|-------------|-------------------|--|----------|
| 1           | 14152             | Engine Pulley (J.A.P.)   | 1        |
| 1           | 14030             | Engine Pulley (Briggs & Stratton)  | 1        |
|             | 14178             | Grub Screw, $\frac{1}{4}$ " B.S.W. x $\frac{1}{2}$ " long (J.A.P.)                         | 1        |
| 2           |                   | Gib Key, $\frac{3}{16}$ " G.S.T. x $1\frac{1}{4}$ " long (Briggs & Stratton)               | 1        |
| 3           | 20707             | Vee Belt (J.A.P.)  | 1        |
| 3           | AC198             | Vee Belt (Briggs & Stratton)   | 1        |
| 4           | 14031             | Drive Pulley   | 1        |
| 5           |                   | Circlip, $1\frac{1}{8}$ " Dia. internal  | 1        |
| 6           |                   | Oil Seal, $1\frac{1}{8}$ " O.D. x $\frac{7}{8}$ " I.D. x $\frac{5}{16}$ " wide             | 1        |
| 7           | BRL $\frac{5}{8}$ | Ball Bearing, $1\frac{1}{8}$ " O.D. x $\frac{5}{8}$ " I.D. x $\frac{7}{16}$ " wide (L.S.7) | 1        |
| 8           | 14080             | Worm Shaft   | 1        |
| 9           | 14022             | Worm Housing   | 1        |
|             |                   | Drain Plug $\frac{1}{8}$ " B.S.P.  | 1        |
| 10          | 14037             | Gasket, side plate   | 1        |
| 11          | 14081             | Wheel Shaft, short   | 1        |
| 12          | 14084             | Wheel Shaft, long  | 1        |
| 13          | 14024             | Worm Wheel (wheel drive)   | 1        |
| 14          | 14087             | Pin (wheel lock)   | 3        |
| 15          | 14088             | Selector Plate   | 1        |
| 16          | 14023             | Wheel Drive Side Plate   | 1        |
| 17          |                   | Bolt, side plate $\frac{5}{16}$ " U.N.C. x 2" long   | 4        |
|             |                   | Upper Bolt, side plate $\frac{5}{16}$ " U.N.C. x $1\frac{1}{2}$ " long                     | 2        |
| 18          |                   | Spring Washer, $\frac{5}{16}$ " Dia.   | 6        |
| 19          |                   | Oilseal, special Weston W.15010025 R.13  | 2        |
| 20          | 14089             | Dust Cap   | 2        |
| 21          | 14026             | Wheel  | 2        |
| 22          | 14038             | Tyre   | 2        |
| 23          | 14034             | Washer   | 2        |
| 24          |                   | Nut, $\frac{1}{2}$ " U.N.C. slotted  | 2        |
| 25          |                   | Split Pin, $\frac{3}{32}$ " Dia. x $1\frac{1}{4}$ " long                                   | 2        |
| 26          | 14134             | Spud Wheel   | 2        |
| 27          |                   | Bolt, $\frac{5}{16}$ " U.N.C. x $1\frac{1}{2}$ " long                                      | 6        |
| 28          | *                 | Spring Washer, $\frac{5}{16}$ " Dia.   | 6        |
| 29          |                   | Nut, $\frac{5}{16}$ " U.N.C.   | 6        |
|             | 14155             | Engine Clip (J.A.P. only)  | 1        |
|             | 14156             | Handlebar Clip   | 3        |
|             |                   | *Accessory.  |          |

## WHEEL LOCK

|    |       |  |   |
|----|-------|--|---|
| 30 | 14145 | Selector Yoke  | 1 |
| 31 | 20469 | Spring   | 1 |
| 32 | 14114 | Crank  | 1 |
| 33 | 14086 | Bush   | 1 |
| 34 | 14107 | Connecting Sleeve  | 1 |
| 35 |       | Taper Pin, $\frac{5}{32}$ " Nom. Dia. x $\frac{3}{4}$ " long | 1 |





COMPONENT: ROTARY INDEX LTD, HORNWOOD, ESSX.4

25, 24, 25

FIGURE 4



|    |       |   |   |
|----|-------|---|---|
| 36 |       | Washer, $\frac{5}{16}$ " Flat. Brt. ... ..                    | 2 |
| 37 |       | Split Pin, $\frac{1}{8}$ " Dia. x $\frac{3}{4}$ " long ... .. | 2 |
| 38 | 14110 | Trunnion Block ... ..   | 1 |
| 39 | 14189 | Control Rod (used with socket type handlebars) ... ..         | 1 |
|    | 14106 | Control Rod (used with open ended handlebars) ... ..          | 1 |

### ROTOR DRIVE

|    |                   |   |   |
|----|-------------------|---|---|
| 45 | 14049             | Filler Plug ... ..  | 1 |
| 46 | 14048             | Fibre Washer ... ..   | 1 |
| 47 |                   | Pivot Bolt, $\frac{5}{16}$ " U.N.C. x $3\frac{1}{2}$ " long ... ..  | 2 |
| 48 |                   | Nut, $\frac{5}{16}$ " U.N.C. ... ..   | 2 |
| 49 | 14098             | Clamp, L.H. ... ..  | 1 |
| 50 | 14100             | Clamp, R.H. ... ..  | 1 |
| 51 | 14103             | Clamp Screw ... ..  | 1 |
| 52 | BRL $\frac{5}{8}$ | Sealed Ball Bearing, $1\frac{9}{16}$ " O.D. x $\frac{5}{8}$ " I.D. x $\frac{7}{16}$ " wide<br>(sealed-LS.7P) ... .. | 1 |
| 53 | 14095             | Sleeve ... ..   | 1 |
| 54 | 14512             | Pin ... ..  | 1 |
| 55 | 14115             | Extension Housing ... ..  | 1 |
| 56 | 14168             | Bolt, Special ... ..  | 4 |
|    |                   | Locking Wire 16 SWG x 10" long ... ..   | 1 |
| 57 |                   | Spring Washer, $\frac{5}{16}$ " Dia. ... ..   | 4 |
| 58 | 14096             | Rotor Worm Shaft ... ..   | 1 |
| 59 | 14121             | Gasket, End Cover ... ..  | 1 |
| 60 | 14027             | Worm Housing ... ..   | 1 |
|    |                   | Drain Plug $\frac{1}{8}$ " B.S.P. ... ..  | 1 |
| 61 | 14049             | Filler Plug ... ..  | 1 |
| 62 | 14048             | Fibre Washer ... ..   | 1 |
| 63 | ACL7              | Ball Bearing, $1\frac{1}{8}$ " O.D. x $\frac{5}{8}$ " I.D. x $\frac{7}{16}$ " wide (LS7 ACD) ... ..                 | 1 |
| 64 | 14036             | Spacer ... ..   | 1 |
| 65 |                   | Circlip, $\frac{5}{8}$ " external ... ..  | 1 |
| 66 | 14121             | Gasket, End Cover ... ..  | 1 |
| 67 | 14122             | End Cover and Shield Support ... ..   | 1 |
| 68 |                   | Spring Washer, $\frac{5}{16}$ " Dia. ... ..   | 4 |
| 69 |                   | Bolt, End Cover, $\frac{5}{16}$ " U.N.C. x $\frac{3}{4}$ " long ... ..  | 4 |
| 75 | 14037             | Gasket, Side Plate ... ..   | 2 |
| 76 | 14025             | Worm Wheel (Rotor Drive) ... ..   | 1 |
| 77 | 14032             | Rotor Drive Shaft ... ..  | 1 |
| 78 | BSK180            | Woodruff Key, $1\frac{1}{8}$ " Dia. x $\frac{1}{4}$ " thick ... ..  | 2 |
| 79 | 14033             | Wearing Washer ... ..   | 2 |
| 80 | 14028             | Side Plate ... ..   | 1 |
| 81 |                   | Spring Washer, $\frac{5}{16}$ " Dia. ... ..   | 6 |
| 82 |                   | Bolt, Side Plate, $\frac{5}{16}$ " U.N.C. x 1" long ... ..  | 4 |
|    |                   | Upper Bolt, Side Plate, $\frac{5}{16}$ " U.N.C. x $\frac{3}{4}$ " long ... ..                                       | 2 |
| 83 |                   | Oil Seal, Special, Weston W.15010025 R.13 ... ..  | 2 |
| 84 | 14089             | Dust Cap ... ..   | 2 |
| 85 | 14029             | Rotor Flange ... ..   | 2 |
| 86 | 14130             | Hoe Blade, R.H. ... ..  | 2 |
| 87 | 14131             | Hoe Blade, L.H. ... ..  | 2 |
| 88 |                   | Blades, Bolt $\frac{5}{16}$ " U.N.C. x $\frac{7}{8}$ " long ... ..  | 8 |
| 89 |                   | Nut, $\frac{5}{16}$ " U.N.C. ... ..   | 8 |
| 90 |                   | Spring Washer, $\frac{5}{16}$ " Dia. ... ..   | 8 |
| 91 | 14034             | Washer ... ..   | 2 |
| 92 |                   | Split Pin, $\frac{3}{32}$ " Dia. x $1\frac{1}{4}$ " long ... ..   | 2 |
| 93 |                   | Nut, $\frac{1}{2}$ " U.N.C. Hex. Slotted ... ..   | 2 |

### SHIELD

|     |       |   |   |
|-----|-------|---|---|
| 100 | 14040 | Shield, Assembly ... ..                                   | 1 |
|     |       | Comprising :  |   |
|     | 14041 | Front Shield ... ..                                       | 1 |
|     | 14045 | Trailing Shield ... ..                                    | 1 |
|     |       | Rivet, $\frac{1}{4}$ " Dia. x $\frac{3}{4}$ " long ... .. | 2 |



|     |       |  |     |     |     |     |     |     |   |
|-----|-------|--|-----|-----|-----|-----|-----|-----|---|
| 101 | 20504 | Hand Lever   | ... | ... | ... | ... | ... | ... | 1 |
| 102 | 20505 | Clip   | ... | ... | ... | ... | ... | ... | 1 |
| 103 | 20470 | Spring   | ... | ... | ... | ... | ... | ... | 1 |
| 104 | 14127 | Special Setscrew   | ... | ... | ... | ... | ... | ... | 1 |
|     | 14126 | Special Locknut  | ... | ... | ... | ... | ... | ... | 1 |
| 105 | 20503 | Skid   | ... | ... | ... | ... | ... | ... | 1 |
| 106 |       | Pivot, Bolt $\frac{5}{16}$ " U.N.C. x $\frac{3}{4}$ " long           | ... | ... | ... | ... | ... | ... | 1 |
| 107 |       | Locknut, $\frac{5}{16}$ " U.N.C. Hex.                                | ... | ... | ... | ... | ... | ... | 1 |
| 108 |       | Bolt, Front and Rear, $\frac{5}{16}$ " U.N.C. x $\frac{3}{4}$ " long | ... | ... | ... | ... | ... | ... | 4 |
| 109 |       | Spring Washer, $\frac{5}{16}$ " Dia.                                 | ... | ... | ... | ... | ... | ... | 4 |
| 110 |       | Nut, Hex. Pln. $\frac{5}{16}$ " U.N.C.                               | ... | ... | ... | ... | ... | ... | 4 |

## HANDLEBARS AND CRADLE

|     |       |  |     |     |     |     |                          |     |   |
|-----|-------|--|-----|-----|-----|-----|--------------------------|-----|---|
| 111 | 14196 | Handlebar, Lower   | ... | ... | ... | ... | ...                      | ... | 1 |
| 112 | 14198 | Handlebar, Upper (Socket), L.H.  | ... | ... | ... | ... | ...                      | ... | 1 |
| 113 | 14199 | Handlebar, Upper (Plain), R.H.   | ... | ... | ... | ... | ...                      | ... | 1 |
| 114 |       | Bolt, $\frac{5}{16}$ " U.N.C. x $1\frac{1}{2}$ " long                        | ... | ... | ... | ... | ...                      | ... | 2 |
|     |       | Nut, $\frac{5}{16}$ " U.N.C.   | ... | ... | ... | ... | ...                      | ... | 2 |
|     |       | Spring Washer, $\frac{5}{16}$ " Dia.   | ... | ... | ... | ... | ...                      | ... | 2 |
|     | 14069 | Handlebar (fixed, open ended)  | ... | ... | ... | ... | ...                      | ... | 1 |
|     | 14135 | Handlebar Grip (for open ended bars)   | ... | ... | ... | ... | ...                      | ... | 2 |
| 116 | 14075 | Clamp Bolt   | ... | ... | ... | ... | ...                      | ... | 1 |
| 117 | 14132 | Tab Washer   | ... | ... | ... | ... | ...                      | ... | 1 |
| 118 |       | Washer, $\frac{1}{2}$ " Dia., Flat   | ... | ... | ... | ... | ...                      | ... | 3 |
|     |       | Setscrew, $\frac{3}{16}$ " B.S.W. x $\frac{1}{2}$ " Long Rd. Hd.             | ... | ... | ... | ... | ...                      | ... | 2 |
|     |       | Flat Washer, $\frac{3}{16}$ " Dia.   | ... | ... | ... | ... | ...                      | ... | 2 |
|     |       | Spring Washer, $\frac{3}{16}$ " Dia.   | ... | ... | ... | ... | ...                      | ... | 2 |
|     |       |  |     |     |     |     | Briggs and Stratton only |     |   |
| 119 | 14077 | Hand Nut   | ... | ... | ... | ... | ...                      | ... | 1 |
| 120 |       | Handle Pivot Bolt $\frac{5}{16}$ " U.N.C. x $\frac{3}{4}$ " long             | ... | ... | ... | ... | ...                      | ... | 2 |
| 121 |       | Locknut, $\frac{5}{16}$ " U.N.C.   | ... | ... | ... | ... | ...                      | ... | 2 |
| 122 | 14111 | Belt Stop  | ... | ... | ... | ... | ...                      | ... | 1 |
| 123 | 14056 | Cradle   | ... | ... | ... | ... | ...                      | ... | 1 |
| 124 |       | Bolt, $\frac{5}{16}$ " U.N.C. x 1" long                                      | ... | ... | ... | ... | ...                      | ... | 4 |
| 125 |       | Spring Washer, $\frac{5}{16}$ " Dia.   | ... | ... | ... | ... | ...                      | ... | 4 |
| 126 | 14150 | Base Plate (J.A.P.)  | ... | ... | ... | ... | ...                      | ... | 1 |
|     | 14052 | Base Plate (Briggs & Stratton)   | ... | ... | ... | ... | ...                      | ... | 1 |
| 127 |       | Pivot Bolt, $\frac{5}{16}$ " U.N.C. x $5\frac{1}{4}$ long                    | ... | ... | ... | ... | ...                      | ... | 1 |
| 128 |       | Locknut, $\frac{5}{16}$ " U.N.C.   | ... | ... | ... | ... | ...                      | ... | 1 |
| 129 |       | Engine Mounting Bolt, $\frac{5}{16}$ " U.N.C. x $1\frac{1}{4}$ " long plated | ... | ... | ... | ... | ...                      | ... | 4 |
| 130 |       | Spring Washer, $\frac{5}{16}$ " Double Coil                                  | ... | ... | ... | ... | ...                      | ... | 4 |
| 132 |       | Locknut, $\frac{5}{16}$ " U.N.C. plated                                      | ... | ... | ... | ... | ...                      | ... | 8 |
| 133 | 14063 | Clutch Lever   | ... | ... | ... | ... | ...                      | ... | 1 |
| 134 |       | Washer, $\frac{1}{8}$ " Dia. Flat  | ... | ... | ... | ... | ...                      | ... | 1 |
| 135 |       | Split Pin, $\frac{3}{32}$ " Dia. x 1" long                                   | ... | ... | ... | ... | ...                      | ... | 1 |
| 136 |       | Wing Nut, $\frac{5}{16}$ " U.N.C.  | ... | ... | ... | ... | ...                      | ... | 1 |
| 137 | 14068 | Cam  | ... | ... | ... | ... | ...                      | ... | 1 |
| 138 | 14141 | Roller Pin   | ... | ... | ... | ... | ...                      | ... | 1 |
| 139 | 14066 | Roller   | ... | ... | ... | ... | ...                      | ... | 1 |
| 140 |       | Washer, $\frac{5}{16}$ " Dia. Flat   | ... | ... | ... | ... | ...                      | ... | 1 |
| 141 |       | Splitpin, $\frac{1}{16}$ " Dia. x $\frac{3}{4}$ " long                       | ... | ... | ... | ... | ...                      | ... | 1 |
| 142 | 14188 | Clutch Rod (used with socket type handlebars)                                | ... | ... | ... | ... | ...                      | ... | 1 |
|     | 14078 | Clutch Rod (used with open ended handlebars)                                 | ... | ... | ... | ... | ...                      | ... | 1 |
| 143 |       | Splitpin, $\frac{1}{16}$ " Dia. x $\frac{3}{4}$ " long                       | ... | ... | ... | ... | ...                      | ... | 1 |
| 144 |       | Washer, $\frac{5}{16}$ " Dia., Flat  | ... | ... | ... | ... | ...                      | ... | 1 |
| 145 | 14079 | Handle Knob  | ... | ... | ... | ... | ...                      | ... | 1 |







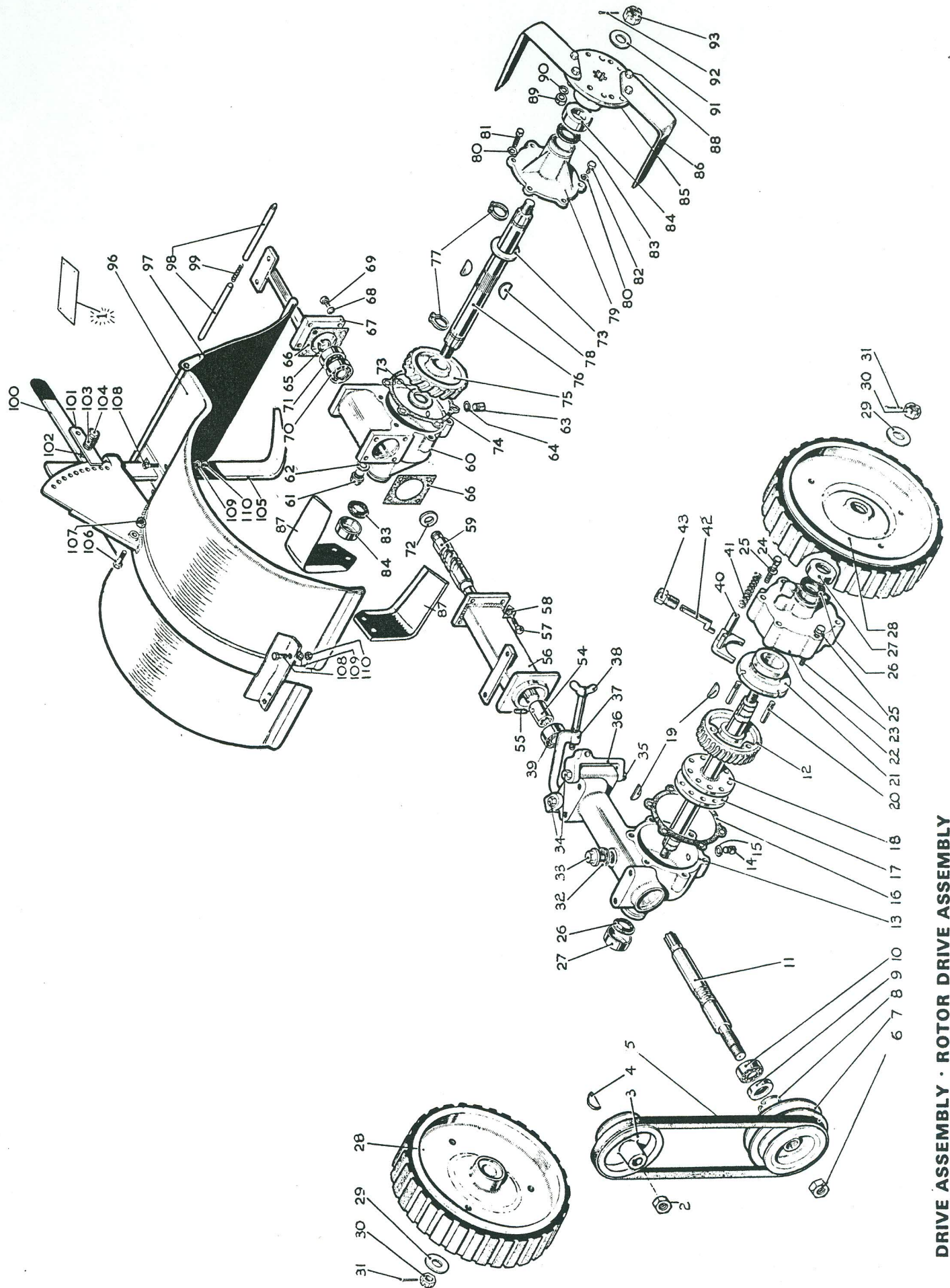
# HOWARD 220 *BULLDOG* ROTAVATOR-Parts List

It is important that when ordering spare parts, the user of a machine should always give the serial number of the particular machine for which that part is required, the part number (not the illustration number) and description. The serial number is stamped on the plate fixed to the front shield. We cannot guarantee to supply correct parts unless these numbers are quoted. In the following parts list all directions are given left or right looking forward from the back of the machine.

| Illus. No.                  | Part No.  | Description   | No. Off | Illus. No.              | Part No.  | Description   | No. off |
|-----------------------------|-----------|---|---------|-------------------------|-----------|---|---------|
| 1                           | 67888     | Machine Serial Number Plate ... ..  | 1       | 60                      | 14027     | Worm Housing ... ..   | 1       |
| <b>DRIVE ASSEMBLY</b>       |           |   |         | 61                      | 203031120 | Filler Plug $\frac{3}{8}$ " BSP. Ref. 11/S/3 ... ..   | 1       |
| 2                           | 107108100 | Gripco Nut $\frac{1}{2}$ " UNF. Thin Top Lock ... ..  | 1       | 62                      | 14048     | Fibre Washer ... ..   | 1       |
| 3                           | 14274     | Engine Pulley ... ..  | 1       | 63                      | 203031150 | Drain Plug $\frac{1}{8}$ " BSP. Benton & Stone type 1385A ... ..  | 1       |
| 4                           | 208008500 | Woodruff Key BS.46. No.505 ... ..   | 1       | 64                      | 202029050 | Washer $\frac{1}{8}$ " BSP. Benton & Stone type 1386A ... ..  | 1       |
| 5                           | 204006030 | 'V' Belt - Fenner - Ref. A.25 ... ..  | 1       | 65                      | 208002030 | Circlip $\frac{5}{8}$ " dia. External ... ..  | 1       |
| 6                           | 14251     | Nut L.H. ... ..   | 1       | 66                      | 14121     | End Cover Gasket ... .. as required   | 1       |
| 7                           | 14031     | Drive Pulley ... ..   | 1       | 67                      | 14253     | Shield Support ... ..   | 1       |
| 8                           | 208001080 | Circlip $1\frac{9}{16}$ " dia. Internal ... ..  | 1       | 68                      | 108050940 | Spring Washer $\frac{5}{16}$ " dia. ... ..  | 4       |
| 9                           | 261609032 | Oilseal $1\frac{9}{16}$ " o.d. x $\frac{7}{8}$ " i.d. x $\frac{5}{16}$ " w. ... ..  | 1       | 69                      | 101205100 | Bolt $\frac{5}{16}$ " UNC. x $1\frac{1}{4}$ " long ... ..   | 4       |
| 10                          | 250615041 | Ballbearing $\frac{5}{8}$ " i.d. x $1\frac{9}{16}$ " o.d. x $\frac{7}{16}$ " w. BRL. $\frac{5}{8}$ "                          | 1       | 70                      | 250616042 | Angular Contact Bearing $1\frac{9}{16}$ " o.d. x $\frac{5}{8}$ " i.d. x $\frac{7}{16}$ " w. ACL. $\frac{5}{8}$ " ... .. | 1       |
| 11                          | 77601     | Worm Shaft } must be supplied as set  | 1       | 71                      | 250614061 | Thrust Race SFL. $\frac{5}{8}$ " ... ..   | 1       |
| 12                          | 77600     | Worm Wheel } from Serial No.220N2701  | 1       | 72                      | 14256     | Spacer ... ..   | 1       |
| 13                          | 14022     | Worm Housing ... ..   | 1       | 73                      | 14033     | Wearing Washer ... ..   | 2       |
| 14                          | 203031150 | Drain Plug - $\frac{1}{8}$ " BSP. Benton & Stone type 1385A ... ..  | 1       | 74                      | 14037     | Sideplate Gasket ... ..   | 2       |
| 15                          | 202029050 | Washer $\frac{1}{8}$ " BSP. Benton & Stone type 1386A ... ..  | 1       | 75                      | 14226     | Worm Wheel ... ..   | 1       |
| 16                          | 14037     | Sideplate Gasket ... .. as required   | 1       | 76                      | 14254     | Rotor Drive Shaft ... ..  | 1       |
| 17                          | 14248     | Wheel Shaft Short ... ..  | 1       | 77                      | 208002060 | Circlip 1" dia. External ... ..   | 2       |
| 18                          | 14249     | Wheel Shaft Long ... ..   | 1       | 78                      | 208008440 | Woodruff Key - BS.46 No.809 ... ..  | 2       |
| 19                          | 208008460 | Woodruff Key BSK.150 ... ..   | 2       | 79                      | 14028     | Sideplate ... ..  | 1       |
| 20                          | 14087     | Wheel Lock Diff. Pin ... ..   | 3       | 80                      | 108050940 | Spring Washer $\frac{5}{16}$ " dia. ... ..  | 6       |
| 21                          | 14088     | Selector Plate ... ..   | 1       | 81                      | 101205060 | Bolt $\frac{5}{16}$ " UNC. x $\frac{3}{4}$ " long ... ..  | 2       |
| 22                          | 14023     | Sideplate ... ..  | 1       | 82                      | 101205080 | Bolt $\frac{5}{16}$ " UNC. x 1" long ... ..   | 4       |
| 23                          | 101205160 | Bolt $\frac{5}{16}$ " UNC x 2" long ... ..  | 4       | 83                      | 261510022 | Oilseal - Weston W.150.100.25 - R.19 ... ..   | 2       |
| 24                          | 101205120 | Bolt $\frac{5}{16}$ " UNC. x $1\frac{1}{4}$ " long ... ..   | 2       | 84                      | 14089     | Dust Cap ... ..   | 2       |
| 25                          | 108050940 | Spring Washer $\frac{5}{16}$ " dia. ... ..  | 6       | 85                      | 14255     | Rotor Flange ... ..   | 2       |
| 26                          | 261510022 | Oilseal - Weston W.150.100.25 - R.19 <i>202019560</i>   | 2       | 86                      | 14130     | Hoe Blade R.H. ... ..   | 3       |
| 27                          | 14089     | Dust Cap ... ..   | 2       | 87                      | 14131     | Hoe Blade L.H. ... ..   | 3       |
| 28                          | 14250     | Wheel complete with Tyre ... ..   | 2       | 88                      | 9846      | Blade Bolt ... ..   | 12      |
| 29                          | 14034     | Washer ... ..   | 2       | 89                      | 107105010 | Nut $\frac{5}{16}$ " UNF. ... ..  | 12      |
| 30                          | 107208050 | Slotted Nut $\frac{1}{2}$ " UNC. ... ..   | 2       | 90                      | 108050940 | Spring Washer $\frac{5}{16}$ " dia. ... ..  | 12      |
| 31                          | 208010140 | Splitpin $\frac{3}{32}$ " dia. x 1" long ... ..   | 2       | 91                      | 14034     | Washer ... ..   | 2       |
| 32                          | 14048     | Fibre Washer ... ..   | 1       | 92                      | 20801040  | Splitpin $\frac{3}{32}$ " dia. x 1" long ... ..   | 2       |
| 33                          | 203031120 | Filler Plug $\frac{3}{8}$ " BSP. Ref. 11/S/3 ... ..   | 1       | 93                      | 107208050 | Slotted Nut $\frac{1}{2}$ " UNC. ... ..   | 2       |
| 34                          | 101205280 | Bolt $\frac{5}{16}$ " UNC. x $3\frac{1}{2}$ " long ... ..   | 2       | 94 - 95 not allocated   |           |   |         |
| 35                          | 107205010 | Nut $\frac{5}{16}$ " UNC. ... ..  | 2       | <b>SHIELD ASSEMBLY</b>  |           |   |         |
| 36                          | 14098     | L.H. Clamp ... ..   | 1       | 96                      | 14257     | Front Shield ... ..   | 1       |
| 37                          | 14100     | R.H. Clamp ... ..   | 1       | 97                      | 14258     | Trailing Shield ... ..  | 1       |
| 38                          | 14103     | Screw ... ..  | 1       | 98                      | 14259     | Hinge Pin ... ..  | 2       |
| 39                          | 250616046 | Ballbearing $\frac{5}{8}$ " i.d. x $1\frac{9}{16}$ " o.d. x $\frac{7}{16}$ " w. - BRL. $\frac{5}{8}$ " sealed one side ... .. | 1       | 99                      | 14260     | Spring ... ..   | 1       |
| 40                          | 14145     | Selector Yoke ... ..  | 1       | 100                     | 20504     | Hand Lever ... ..   | 1       |
| 41                          | 20469     | Spring ... ..   | 1       | 101                     | 20505     | Clip ... ..   | 1       |
| 42                          | 14114     | Wheel Lock Crank ... ..   | 1       | 102                     | 14126     | Special Locknut ... ..  | 1       |
| 43                          | 14086     | Bush ... ..   | 1       | 103                     | 20470     | Spring ... ..   | 1       |
| 44 - 53 not allocated       |           |   |         | 104                     | 14127     | Special Setscrew ... ..   | 1       |
| <b>ROTOR DRIVE ASSEMBLY</b> |           |   |         | 105                     | 14296     | Depth Skid ... ..   | 1       |
| 54                          | 14095     | Sleeve ... ..   | 1       | 106                     | 101405060 | Bolt $\frac{5}{16}$ " UNC. x $\frac{3}{4}$ " long ... ..  | 1       |
| 55                          | 14512     | Pin ... ..  | 1       | 107                     | 107205020 | Locknut $\frac{5}{16}$ " UNC. ... ..  | 1       |
| 56                          | 14115     | Extension Housing ... ..  | 1       | 108                     | 101405060 | Bolt $\frac{5}{16}$ " UNC. x $\frac{3}{4}$ " long ... ..  | 4       |
| 57                          | 101205060 | Bolt $\frac{5}{16}$ " UNC. x $\frac{3}{4}$ " long ... ..  | 4       | 109                     | 108050940 | Spring Washer $\frac{5}{16}$ " dia. ... ..  | 4       |
| 58                          | 14252     | Lock Washer ... ..  | 4       | 110                     | 107205010 | Nut $\frac{5}{16}$ " UNC. ... ..  | 4       |
| 59                          | 14225     | Worm Shaft ... ..   | 1       | 111 - 120 not allocated |           |   |         |



# HOWARD 220 ROTAVATOR - Parts List



DRIVE ASSEMBLY · ROTOR DRIVE ASSEMBLY  
SHIELD ASSEMBLY

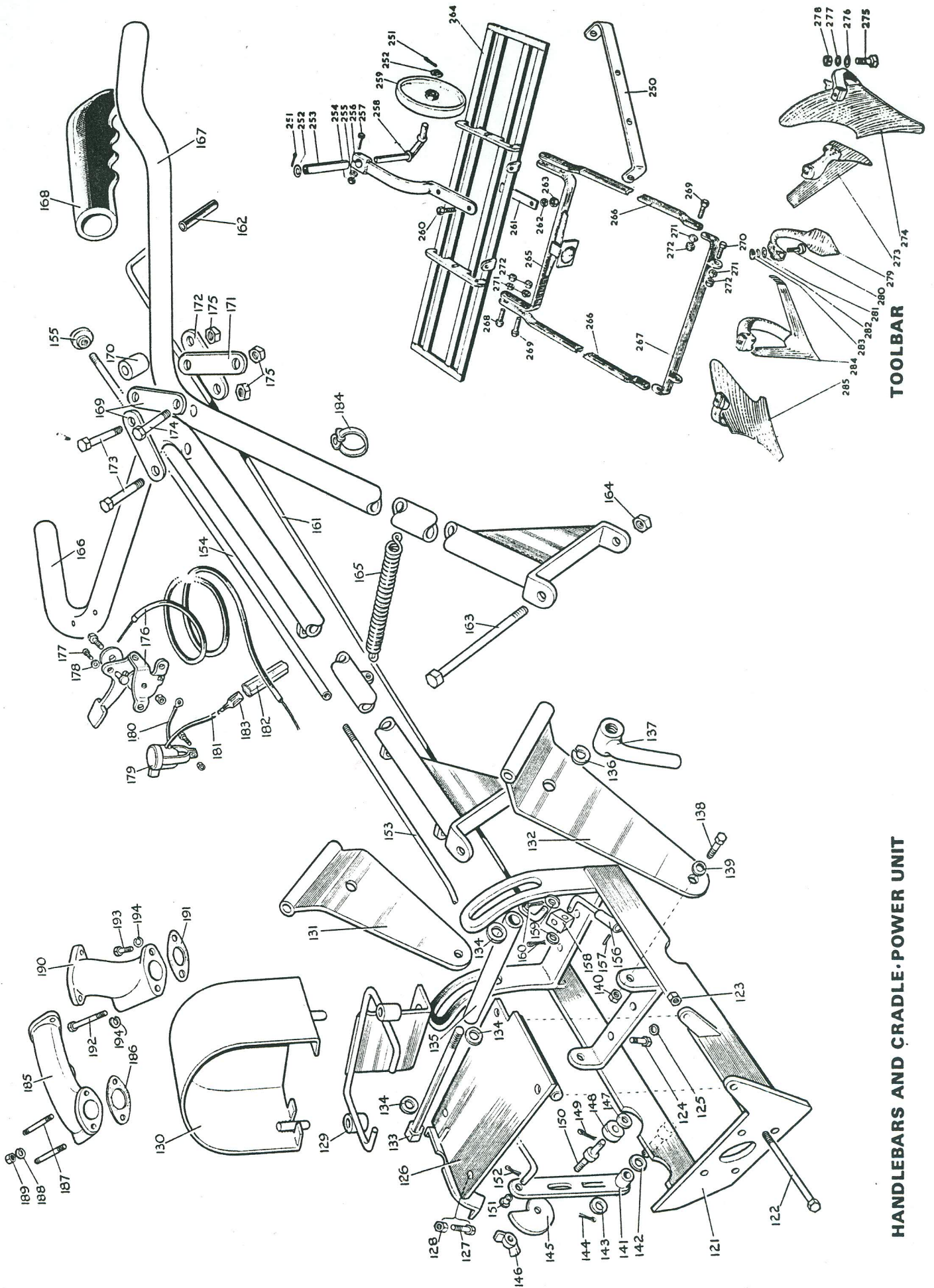


# HOWARD 220 ROTAVATOR - Parts List

| Illus. No.                   | Part No.  | Description   | No. off | Illus. No.              | Part No.            | Description   | No. off |
|------------------------------|-----------|---|---------|-------------------------|---------------------|---|---------|
| <b>HANDLEBARS AND CRADLE</b> |           |   |         | 14305                   |                     | Stop Switch Assembly comprising:—   | 1       |
| 121                          | 14261     | Engine Cradle   | 1       | 179                     | 207005100           | Stop Switch — Miller D.2. Spec. $\frac{7}{8}$ " Bar x $\frac{1}{2}$ " Screw | 1       |
| 122                          | 101205420 | Bolt $\frac{5}{16}$ " UNC. x 5 $\frac{1}{4}$ " long   | 1       | 180                     | 67782               | Cable and Terminal Assembly   | 1       |
| 123                          | 107205020 | Locknut $\frac{5}{16}$ " UNC.   | 1       | 181                     | 207008510           | Cable 14/012 PVC. Auto Cable x 50' long                                     | 1       |
| 124                          | 101405080 | Setscrew $\frac{5}{16}$ " UNC. x 1" long  | 4       | 182                     | 207008450           | In-line Connector — Ripaults 3000 SSA.                                      | 1       |
| 125                          | 108050940 | Spring Washer $\frac{5}{16}$ " dia.   | 4       | 183                     | 207008090           | Straight Female Terminal — Ripaults 3000 H.20 A.                            | 2       |
| 126                          | 14228     | Base Plate  | 1       | 184                     | 208003290           | Cable Clip - John Bull - Size 'S' Ref.85-5931                               | 3       |
| 127                          | 101205125 | Bolt $\frac{5}{16}$ " UNC. x 1 $\frac{1}{2}$ " long, Cadmium Coated                                   | 4       | 185                     | 14272               | Air Cleaner Elbow   | 1       |
| 128                          | 107205130 | Philidas Nut $\frac{5}{16}$ " UNC. GUCP/1   | 4       | 186                     | 14273               | Gasket  | 1       |
| 129                          | 14111     | Belt Stop   | 1       | 187                     | 14304               | Stud  | 2       |
| 130                          | 14234     | Belt Guard  | 1       | 188                     | 108030540           | Spring Washer $\frac{3}{16}$ " dia.   | 2       |
| 131                          | 14286     | Handlebar Adjuster R.H.   | 1       | 189                     | 107110205           | Nut No.10 UNF. Cadmium Plated   | 2       |
| 132                          | 14287     | Handlebar Adjuster L.H.   | 1       | 190                     | 14310               | Exhaust Elbow   | 1       |
| 133                          | 14289     | Special Bolt  | 1       | 191                     | 14311               | Exhaust Gasket  | 2       |
| 134                          | 108081610 | Flat Washer $\frac{1}{2}$ " dia.  | 3       | 192                     | 101204200           | Bolt $\frac{1}{4}$ " UNC. x 2 $\frac{1}{2}$ " long                          | 1       |
| 135                          | 14292     | Spacer Tube   | 1       | 193                     | 101404050           | Setscrew $\frac{1}{4}$ " UNC. x $\frac{5}{8}$ " Long                        | 1       |
| 136                          | 108081440 | Spring Washer $\frac{1}{2}$ " dia.  | 1       | 194                     | 108040840           | Spring Washer $\frac{1}{4}$ " dia.  | 2       |
| 137                          | 14288     | Adjusting Lever   | 1       | 195 - 249 not allocated |                     |   |         |
| 138                          | 101405060 | Setscrew $\frac{5}{16}$ " UNC. x $\frac{3}{4}$ " long   | 2       | <b>TOOLBAR</b>          |                     |   |         |
| 139                          | 108051010 | Flat Washer $\frac{5}{16}$ " dia.   | 2       | 250                     | 14634               | Support Stay  | 1       |
| 140                          | 107205020 | Locknut $\frac{5}{16}$ " UNC.   | 2       | 251                     | 208010410           | Splitpin $\frac{1}{8}$ " dia. x 1 $\frac{1}{2}$ " long                      | 2       |
| 141                          | 14063     | Clutch Lever  | 1       | 252                     | 108102010           | Flat Washer $\frac{5}{8}$ " dia.  | 2       |
| 142                          | 14262     | Spacer  | 1       | 253                     | 21050               | Tube  | 1       |
| 143                          | 108071410 | Flat Washer $\frac{7}{16}$ " dia.   | 1       | 254                     | 107505010           | Nut $\frac{5}{16}$ " BSF.   | 1       |
| 144                          | 208010140 | Splitpin $\frac{3}{32}$ " dia. x 1" long  | 1       | 255                     | 108050940           | Spring Washer $\frac{5}{16}$ " dia.   | 1       |
| 145                          | 14068     | Cam   | 1       | 256                     | 21049               | Wheel Arm   | 1       |
| 146                          | 107205060 | Wing Nut $\frac{5}{16}$ " UNC.  | 1       | 257                     | 101505130           | Bolt, Pivot Block $\frac{5}{16}$ " BSF. x 1 $\frac{5}{8}$ " long            | 1       |
| 147                          | 108051010 | Flat Washer $\frac{5}{16}$ " dia.   | 1       | 258                     | 21048               | Castor  | 1       |
| 148                          | 14066     | Roller  | 1       | 259                     | 20371               | Wheel   | 1       |
| 149                          | 208010060 | Splitpin $\frac{1}{16}$ " dia. x $\frac{3}{4}$ " long   | 1       | 260                     | 101605100           | Bolt, Clamp Plate $\frac{5}{16}$ " BSW. x 1 $\frac{1}{4}$ " long            | 2       |
| 150                          | 14141     | Roller Pin  | 1       | 261                     | 21051               | Clamp Plate   | 1       |
| 151                          | 14294     | Bush  | 1       | 262                     | 108050940           | Spring Washer $\frac{5}{16}$ " dia.   | 2       |
| 152                          | 208010040 | Splitpin $\frac{1}{16}$ " dia. x $\frac{1}{2}$ " long   | 1       | 263                     | 107605010           | Nut $\frac{5}{16}$ " BSW.   | 2       |
| 153                          | 14295     | Clutch Coupling Wire  | 1       | 264                     | 21041               | Tool Bar  | 1       |
| 154                          | 20573     | Clutch Push Rod   | 1       | 265                     | 14615               | Rear Mounting   | 1       |
| 155                          | 20572     | Knob  | 1       | 266                     | 14614               | Support Arm   | 2       |
| 156                          | 14107     | Connecting Sleeve   | 1       | 267                     | 14620               | Front Mounting  | 1       |
| 157                          | 208011140 | Taper Pin $\frac{5}{32}$ " dia. x $\frac{3}{4}$ " long  | 1       | 268                     | 101405080           | Setscrew $\frac{5}{16}$ " UNC. x 1" long, Hex. Head                         | 2       |
| 158                          | 14110     | Trunnion Block  | 1       | 269                     | 101205100           | Bolt $\frac{5}{16}$ " UNC. x 1 $\frac{1}{4}$ " long                         | 4       |
| 159                          | 108051010 | Flat Washer $\frac{5}{16}$ " dia.   | 2       | 270                     | 101405070           | Bolt $\frac{5}{16}$ " UNC. x $\frac{7}{8}$ " long                           | 2       |
| 160                          | 208010060 | Splitpin $\frac{1}{16}$ " dia. x $\frac{3}{4}$ " long   | 2       | 271                     | 108050940           | Spring Washer $\frac{5}{16}$ " dia.   | 8       |
| 161                          | 14106     | Control Rod — Wheel Lock  | 1       | 272                     | 107205010           | Nut $\frac{5}{16}$ " UNC.   | 8       |
| 162                          | 207001300 | Sleeve  | 1       | 273                     | 14624               | Side Hoe L.H. 5"  |         |
| 163                          | 101205380 | Bolt $\frac{5}{16}$ " UNC. x 4 $\frac{3}{4}$ " long   | 2       | 14625                   | Side Hoe R.H. 5"    |   |         |
| 164                          | 107205020 | Locknut $\frac{5}{16}$ " UNC.   | 2       | 14626                   | Side Hoe L.H. 9"    |   |         |
|                              | 14275     | Handlebar Assembly comprising:—   | 1       | 14627                   | Side Hoe R.H. 9"    |   |         |
| 165                          | 14278     | Spring  | 1       | 274                     | 14631               | Single Plough   |         |
| 166                          | 14306     | Handlebar R.H.  | 1       | 275                     | 208055810           | Bolt $\frac{3}{8}$ " BSW. x 1 $\frac{5}{16}$ " long, Square Head            | 1       |
| 167                          | 14307     | Handlebar L.H.  | 1       | 276                     | 108081610           | Flat Washer $\frac{1}{2}$ " dia.  | 1       |
| 168                          | 207001350 | Handlebar Grip  | 2       | 277                     | 108061210           | Flat Washer $\frac{3}{8}$ " dia.  | 1       |
| 169                          | 20525     | Upper Toggle Link   | 2       | 278                     | 107606160           | Nut $\frac{3}{8}$ " BSW. Square   | 1       |
| 170                          | 14280     | Spacer  | 1       | 279                     | 14632               | Cultivating Tine  |         |
| 171                          | 14281     | Centre Toggle Link  | 1       | 280                     | 105606120           | Bolt $\frac{3}{8}$ " BSW. x 1 $\frac{1}{2}$ " long, Carriage type           | 1       |
| 172                          | 14282     | Lower Toggle Link   | 1       | 281                     | 108081610           | Flat Washer $\frac{1}{2}$ " dia.  | 1       |
| 173                          | 101105160 | Bolt $\frac{5}{16}$ " UNF. x 2" long  | 2       | 282                     | 108061210           | Flat Washer $\frac{3}{8}$ " dia.  | 1       |
| 174                          | 101105140 | Bolt $\frac{5}{16}$ " UNF. x 1 $\frac{3}{4}$ " long   | 1       | 283                     | 107606160           | Nut $\frac{3}{8}$ " BSW. Square   | 1       |
| 175                          | 107105010 | Nut $\frac{5}{16}$ " UNF.   | 3       | 284                     | 14628               | 8" Sweep  |         |
| <b>POWER UNIT</b>            |           |   |         | 285                     | 14629               | Hilling Plough L.H.   |         |
| 176                          | 207001220 | Throttle Control — Auto-car WC.223 Black Handle — 57 $\frac{1}{2}$ " Inner - 54 $\frac{1}{2}$ " Outer | 1       | 14630                   | Hilling Plough R.H. |   |         |
| 177                          | 133310035 | Cheese Head Screw No.10 UNF. x $\frac{3}{8}$ " long, Cadmium Plated                                   | 2       | 275                     | 208055810           | Bolt $\frac{3}{8}$ " BSW. x 1 $\frac{5}{16}$ " long, Square Head            | 1       |
| 178                          | 108030730 | Shakeproof Washer $\frac{3}{16}$ " dia. Internal  | 2       | 276                     | 108081610           | Flat Washer $\frac{1}{2}$ " dia.  | 1       |
|                              |           |   |         | 277                     | 108061210           | Flat Washer $\frac{3}{8}$ " dia.  | 1       |
|                              |           |   |         | 278                     | 107606160           | Nut $\frac{3}{8}$ " BSW. Square   | 1       |
|                              |           |   |         | 279 - 285 not allocated |                     |   |         |



# HOWARD 220 ROTAVATOR - Parts List



**TOOLBAR**

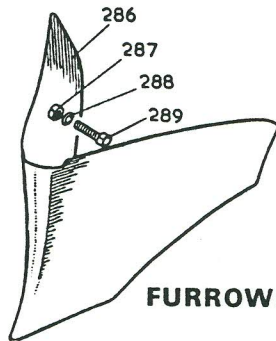
**HANDLEBARS AND CRADLE POWER UNIT**



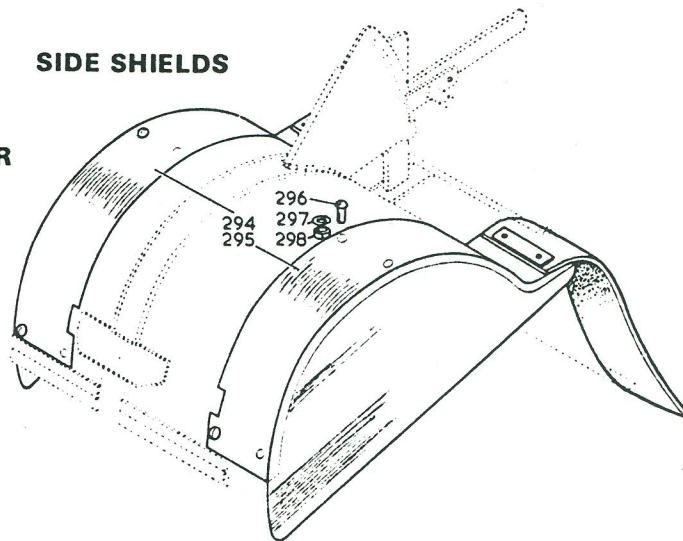
# HOWARD ROYALAVATOR - Parts List

| Illus. No.                 | Part No.  | Description   | No. Off | Illus. No.          | Part No.               | Description  | No. Off |
|----------------------------|-----------|---|---------|---------------------|------------------------|--|---------|
| <b>FURROWER ATTACHMENT</b> |           |   |         | <b>SIDE SHIELDS</b> |                        |  |         |
| 286                        | 14136     | Furrower ... ..                                     | 1       | 14160               | Shield Assembly ... .. | 1  |         |
| 287                        | 107205010 | Nut $\frac{5}{16}$ " UNC. ... ..                    | 1       |                     | comprising:-           |  |         |
| 288                        | 108050940 | Spring Washer $\frac{5}{16}$ " dia. ... ..          | 1       | 294                 | 14161                  | Shield Extension R.H. ... ..                                     | 1       |
| 289                        | 101405080 | Setscrew $\frac{5}{16}$ " UNC. x 1" long, Hex. Head | 1       | 295                 | 14164                  | Shield Extension L.H. ... ..                                     | 1       |
| 290 - 293 not allocated    |           |   |         | 296                 | 208055090              | Setscrew $\frac{1}{4}$ " BSF. x $\frac{1}{2}$ " long, Round Head | 6       |
|                            |           |   |         | 297                 | 108040840              | Spring Washer $\frac{1}{4}$ " dia. ... ..                        | 6       |
|                            |           |   |         | 298                 | 107504020              | Locknut $\frac{1}{4}$ " BSF. ... ..                              | 6       |

**NOTE:-** To increase rotor width fit 2 pairs of 9899 R.H. and 9898 L.H. Blades (see operating instructions).



**FURROWER**



**SIDE SHIELDS**

## NUMERICAL PARTS LIST

| Part No. | Illus. No. | Part No. | Illus. No. | Part No. | Illus. No. | Part No.  | Illus. No. | Part No.  | Illus. No. | Part No.  | Illus. No. | Part No.  | Illus. No. |
|----------|------------|----------|------------|----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
| 9846     | 88         | 14126    | 102        | 14275    | 165        | 14634     | 250        | 101404050 | 193        | 107606160 | 283        | 204006030 | 5          |
| 14022    | 13         | 14127    | 104        | 14278    | 165        | 20371     | 259        | 101405060 | 106        | 108030540 | 188        | 207001220 | 176        |
| 14023    | 22         | 14130    | 86         | 14280    | 170        | 20469     | 41         | 101405060 | 108        | 108030730 | 178        | 207001300 | 162        |
| 14027    | 60         | 14131    | 87         | 14281    | 171        | 20470     | 103        | 101405060 | 138        | 108040840 | 194        | 207001350 | 168        |
| 14028    | 79         | 14136    | 286        | 14282    | 172        | 20504     | 100        | 101405070 | 270        | 108040840 | 297        | 207005100 | 179        |
| 14031    | 7          | 14141    | 150        | 14286    | 131        | 20505     | 101        | 101405080 | 124        | 108050940 | 25         | 207008090 | 183        |
| 14033    | 73         | 14145    | 40         | 14287    | 132        | 20525     | 169        | 101405080 | 268        | 108050940 | 68         | 207008450 | 182        |
| 14034    | 29         | 14160    | 294        | 14288    | 137        | 20572     | 155        | 101405080 | 289        | 108050940 | 80         | 207008510 | 181        |
| 14034    | 91         | 14161    | 294        | 14289    | 133        | 20573     | 154        | 101505130 | 257        | 108050940 | 90         | 208001080 | 8          |
| 14037    | 16         | 14164    | 295        | 14292    | 135        | 21041     | 264        | 101605100 | 260        | 108050940 | 109        | 208002030 | 65         |
| 14037    | 74         | 14225    | 59         | 14294    | 151        | 21048     | 258        | 133310035 | 177        | 108050940 | 125        | 208002060 | 77         |
| 14048    | 32         | 14226    | 75         | 14295    | 153        | 21049     | 256        | 105606120 | 280        | 108050940 | 255        | 208003290 | 184        |
| 14048    | 62         | 14228    | 126        | 14296    | 105        | 21050     | 253        | 107105010 | 89         | 108050940 | 262        | 208008440 | 78         |
| 14063    | 141        | 14234    | 130        | 14304    | 187        | 21051     | 261        | 107105010 | 175        | 108050940 | 271        | 208008460 | 19         |
| 14066    | 148        | 14248    | 17         | 14305    | 179        | 67782     | 180        | 107108100 | 2          | 108050940 | 288        | 208008500 | 4          |
| 14068    | 145        | 14249    | 18         | 14306    | 166        | 67888     | 1          | 107110205 | 189        | 108051010 | 139        | 208010040 | 152        |
| 14086    | 43         | 14250    | 28         | 14307    | 167        | 77600     | 12         | 107205010 | 35         | 108051010 | 147        | 208010060 | 149        |
| 14087    | 20         | 14251    | 6          | 14310    | 190        | 77601     | 11         | 107205010 | 110        | 108051010 | 159        | 208010060 | 160        |
| 14088    | 21         | 14252    | 58         | 14311    | 191        | 101105140 | 174        | 107205010 | 272        | 108061210 | 277        | 208010140 | 31         |
| 14089    | 27         | 14253    | 67         | 14512    | 55         | 101105160 | 173        | 107205010 | 287        | 108061210 | 282        | 208010140 | 92         |
| 14089    | 84         | 14254    | 76         | 14614    | 266        | 101204200 | 192        | 107205020 | 107        | 108071410 | 143        | 208010140 | 144        |
| 14095    | 54         | 14255    | 85         | 14615    | 265        | 101205060 | 57         | 107205020 | 123        | 108081440 | 136        | 208010410 | 251        |
| 14098    | 36         | 14256    | 72         | 14620    | 267        | 101205060 | 81         | 107205020 | 140        | 108081610 | 134        | 208011140 | 157        |
| 14100    | 37         | 14257    | 96         | 14624    | 273        | 101205080 | 82         | 107205020 | 164        | 108081610 | 276        | 208055090 | 296        |
| 14103    | 38         | 14258    | 97         | 14625    | 273        | 101205100 | 69         | 107205060 | 146        | 108081610 | 281        | 208055810 | 275        |
| 14106    | 161        | 14259    | 98         | 14626    | 273        | 101205100 | 269        | 107205130 | 128        | 108102010 | 252        | 250614061 | 71         |
| 14107    | 156        | 14260    | 99         | 14627    | 273        | 101205120 | 24         | 107208050 | 30         | 202029050 | 15         | 250615041 | 10         |
| 14110    | 158        | 14261    | 121        | 14628    | 284        | 101205125 | 127        | 107208050 | 93         | 202029050 | 64         | 250616042 | 70         |
| 14111    | 129        | 14262    | 142        | 14629    | 285        | 101205160 | 23         | 107504020 | 298        | 203031120 | 33         | 250616046 | 39         |
| 14114    | 42         | 14272    | 185        | 14630    | 285        | 101205280 | 34         | 107505010 | 254        | 203031120 | 61         | 261510022 | 26         |
| 14115    | 56         | 14273    | 186        | 14631    | 274        | 101205380 | 163        | 107605010 | 263        | 203031150 | 14         | 261510022 | 83         |
| 14121    | 66         | 14274    | 3          | 14632    | 279        | 101205420 | 122        | 107606160 | 278        | 203031150 | 63         | 261609032 | 9          |