

# Fault Finding Chart

## 284/S BREAKERS

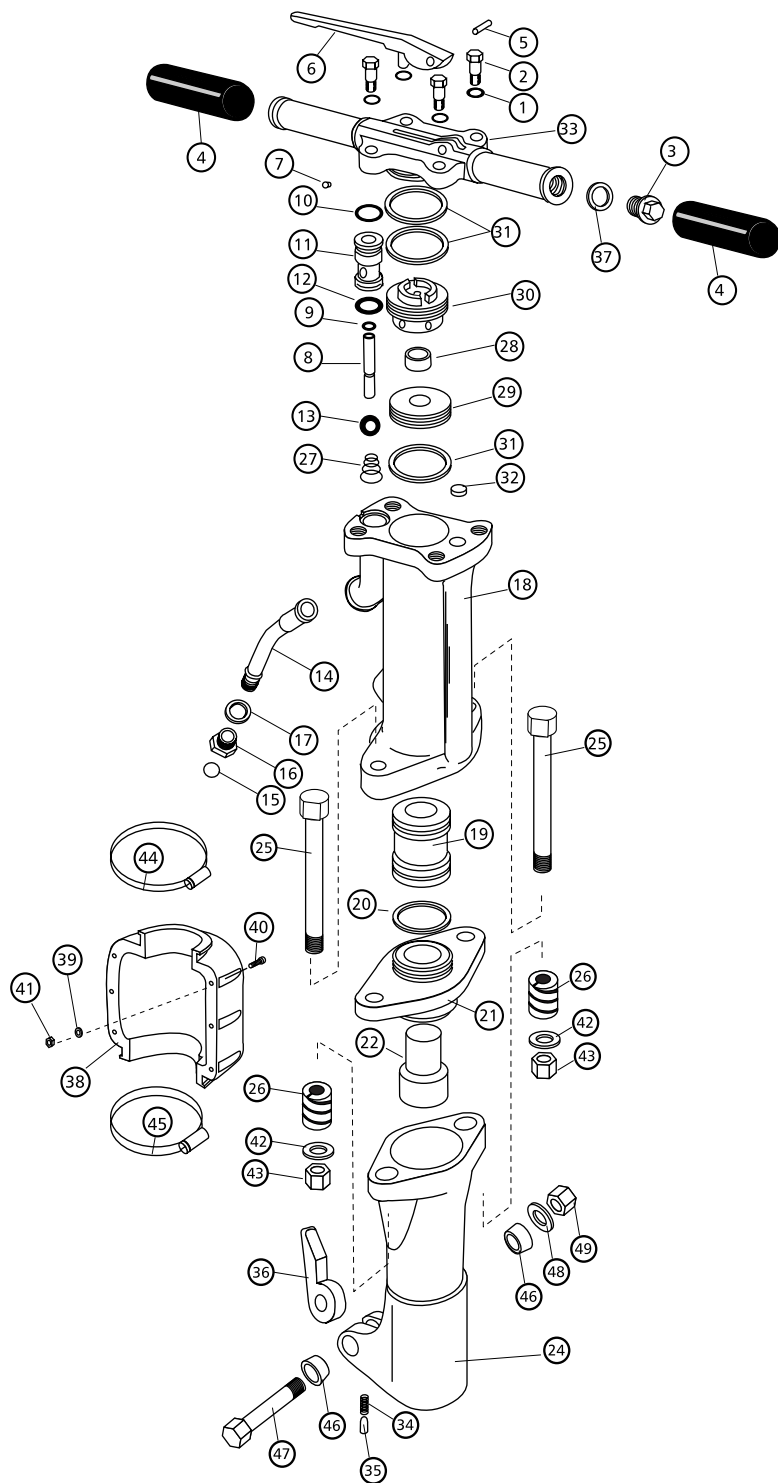
FAULT	POSSIBLE CAUSE	CONFIRM CAUSE	REMEDY
5) Breaker not using any oil or too much oil from oil reservoir.	a) Oilite bushing(7) has become blocked or damaged.	a) Remove handle(33) from breaker, remove oil plug (3) from breaker handle and fill reservoir with correct grade of light oil. Attach an air supply hose to the oil reservoir inlet thread and pressurise oil reservoir to a pressure of 6 or 7 bar whilst observing the outlet from the oilite bush(7) to ensure it is passing the correct amount of oil.if the oilite bush is passing no oil or if the reservoir empties of oil in less than 2 hours then it is damaged and should be replaced.	a) Existing oilite bush should be drilled out using a 6mm diameter drill bit. Fit new oilite bushing assembly by entering tapered end of nylon bush into hole in handle and gently tapping until complete assembly is approximately 6mm inside locating hole. Use centre punch to peen over end of locating hole so that the oilite bush assembly cannot be expelled by compressed air when the breaker is operated.

FAULT	POSSIBLE CAUSE	CONFIRM CAUSE	REMEDY
6) Breaker suffers from broken side rods(25)(53)or tappet bushing (21).	a) Tappet bushing seal(20) missing or damaged.	a) Remove chuck housing(24), tappet(22) and tappet bushing(21) and check if tappet bushing seal(20) is in place.	a) Replace tappet bushing seal (20).
	b) Excessive wear between piston(19) and cylinder(18) and/or between tappet(22) and tappet bushing(21)	b) Remove chuck housing(24), tappet(22), tappet bushing (21) and piston(19)and measure diameter/s of piston and tappet.	b) If piston diameter is less than 56.83mm and/or tappet major diameter is less than 44.26 mm diameter and/or tappet minor diameter is less than 34.67mm diameter, replace components as required. Always fit a new tappet bushing seal(20) when replacing any of the other components.



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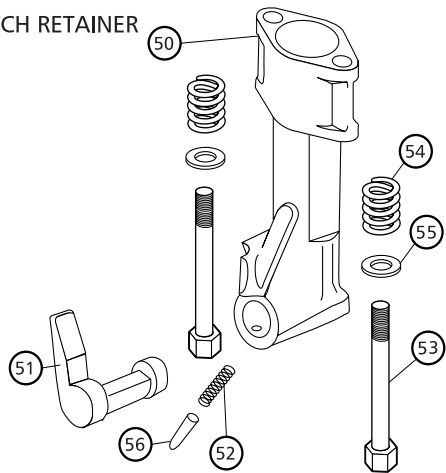
## MACDONALD 284/S PARTS LIST



ILL.	Part	Description of Part	Per Tool	
R	1	007025	Spring Washer	4
O	2	007007	Handle Bolt	4
R	3	003024	Oil Plug	1
O	4	007005	Handle Grip	2
R	5	007003	Throttle Lever Pivot Pin	1
O	6	007002	Throttle Lever	1
	7	030618	Oilite Bush	1
O	8	030009	Throttle Valve Stem	1
R	9	001006	Throttle valve Stem Seal	1
R	10	007013	Top Seal - T.V. Bush	1
	11	030015	Throttle Valve bush	1
R	12	504035	Bottom Seal T.V. Bush	1
R	13	023014	Throttle Valve Ball	1
O	14	030045	Swivel Air Connection	1
R	15	001014	Sealing Ring	1
	16	030046	Swivel Air Connection Nut	1
R	17	005025	Swivel Air Connection gasket	1
	18	030071	Cylinder	1
	19	007024	Piston	1
R	20	023055	Seal Tappet Bushing	1
	21	030044	Tappet Bushing	1
	22	001025	Tappet	1
	24	036015	Chuck Housing - 1.1/4" Hex	1
O	25	036011	Side Rod	2
O	26	036010	Side Rod Spring	2
R	27	030012	Throttle Valve Spring	1
O	28	061035b	Valve ( Bevelled )	1
O	29	007022	Valve Seat - Metal	1
O	30	007047	Valve Block - Metal	1
R	31	007006	Seal - Handle - Valve block & Valve Seat	3
	32	030006	Plug	1
	33	007001	Handle	1
O	34	435210	Steel Retainer Spring	1
O	35	435220	Steel Retainer Plunger	1
O	36	435270	Steel Retainer	1
R	37	003023	Oil Plug Seal	1
	38	030614	Silencer Body ( 2 halves)	1
R	39	029013	Silencer Washer	16
R	40	910104	Silencer Set Screw	8
R	41	029009	Silencer Nut	8
O	42	036013	Washer	2
	43	036012	Side Rod Nut	2
	44	906005	Jubilee Clip	1
	45	906013	Jubilee Clip	1
	46	435230	Retainer Bolt Bush	2
	47	062017	Retainer Bolt	1
	48	805621	Washer	1

ILL.	Part	Description of Part	Per Tool	
R	50	030042	Chuck Housing	1
	51	001046	Steel Retainer	1
O	52	001044	Steel Retainer Spring	1
R	53	030047	Side Rod ( Case Hardened )	2
O	54	030033	Side Rod Spring	2
R	55	030032	Side Rod Washer	2
R	56	030073m	Steel Retainer Plunger	2

### SIDE LATCH RETAINER



Key R = Recommended Spares ( ie stock )  
O = Occasional Spares ( order as required )

### FAULT

1) Breaker does not run when throttle is closed

### POSSIBLE CAUSE

- a) Piston (19) seized.
- b) Automatic valve (28) jammed.

### CONFIRM CAUSE

- a) Remove handle(33), valve block assembly(30),(28)&(29), chuck housing(24), tappet(22) and tappet bushing(21)
- b) Remove handle (33) and valve block (30) and examine valve.

### REMEDY

- a) Drive piston out of cylinder(18)and polish with emery cloth. Hone cylinder if required.
- b) Remove any grit or other foreign matter. If auto valve (28) or valve block(30) or valve seat(29) have been damaged replace them.

- c) Tool flooded with oil,causing valve to stick.

- c) Remove handle and valve block assembly.

- c) If it is not possible to avoid excess lubrication of breaker, fit "excess oil automatic valve" (e.o.a.) valve, part number 061035b , which is now fitted as standard to all new 284s breakers.

- d) Air hose or throttle valve casing blocked

- d) Turn off air supply at compressor. Disconnect hose from breaker and whilst gripping the outlet end tightly, turn on air supply and ensure hose is clear. If hose is clear then remove handle and throttle valve bush(11) and check for blockages

- d) Remove any foreign material from hose and/or throttle valve assembly.

- d) Air hose or throttle valve casing blocked

- d) Turn off air supply at compressor. Disconnect hose from breaker and whilst gripping the outlet end tightly, turn on air supply and ensure hose is clear. If hose is clear then remove handle and throttle valve bush(11) and check for blockages

- d) Remove any foreign material from hose and/or throttle valve assembly.

### FAULT

2) Breaker does not stop when throttle is released.

### POSSIBLE CAUSE

- a) Lower throttle valve casing seal(12) or throttle valve ball (13) damaged.

### CONFIRM CAUSE

- a) Remove handle(33) and throttle valve casing(11) and check for damage.

### REMEDY

- a) Replace damaged parts as required.

### FAULT

3) Air is being blown up on to operator's face during operation of breaker.

### POSSIBLE CAUSE

- a) Throttle valve stem seal(9) or throttle valve bush (11) worn.

### CONFIRM CAUSE

- a) Remove handle(33) and throttle valve assembly and check for wear.

### REMEDY

- a) Replace any worn parts.

### FAULT

4) Breaker runs but with reduced power.

### POSSIBLE CAUSE

- a) Piston/cylinder clearance too great.

### CONFIRM CAUSE

- a) Remove handle(33), valve block(30), valve(28) and valve seat(29). Remove piston(19) and measure diameter.

### REMEDY

- a) If piston diameter is 56.83 mm diameter or less, replace it.

- b) Valve block(30), valve(28) and/or valveseat(29),

- b) Remove handle(33) and valve block assembly and examine for excessive wear or damage.

- b) Replace components as required.

- c) Low air supply pressure.

- c) Breaker too far from air compressor. Too long or too small diameter hose being used.

- c) Check with compressor and breaker supplier for correct hose diameter/ length relationship.

- d) Tappet seized or otherwise damaged.

- d) Remove chuck housing (24) and examine tappet and tappet bushing.

- d) Repair or replace as required.

- e) Throttle valve stem(8) has become shortened by wear so that throttle does not fully open when throttle lever (6) is fully depressed.

- e) Remove handle(33) and pull out throttle valve stem.

- e) Measure length of throttle valve stem. If stem has worn to 87mm or less it should be replaced. Also check throttle lever (6) for signs of excessive wear or distortion and repair or replace as required.

Note:- it should be remembered that light, medium and heavy duty breakers are available. Make sure that the correct weight class of breaker is being compared when comparing the breaking power of different models of breaker, especially when comparing products from different manufacturers.